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**Space Network (SN)  
Web Services Interface (SWSI)  
Client Software User's Guide  
Release 04.1**

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Greenbelt, Maryland

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# Space Network (SN) Web Services Interface (SWSI) Client Software User's Guide Release 04.1

February 2004

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# Preface

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This document contains Local Operating Procedures (LOP) and overview material necessary for operation of the Space Network (SN) Web Services Interface (SWSI) Client software.

This document is under the configuration management of the Flight Programs and Projects Directorate's Space Network Project (Code 452) Configuration Control Board (CCB). Configuration Change Requests (CCR) to this document may be submitted to the Space Network Project's CCB along with supportive material justifying the proposed change. Changes to this document shall be made by Documentation Change Notice (DCN) or by complete revision.

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# Abstract

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The primary function of the Space Network (SN) Web Services Interface (SWSI) is to provide a network-based cross-platform customer interface for performing Tracking and Data Relay Satellite (TDRS) and Demand Access System (DAS) scheduling and real-time service monitoring and control. A secure interface is provided to allow these functions to be performed either from the NASA Integrated Services Network (NISN) Internet Protocol (IP) Operational Network (IONet) or from the Internet.

This Client Software User's Guide provides the necessary information and guidelines for SWSI users to perform the required steps for operation of the SWSI Client in support of SN customer mission operations.

**Keywords:** *SWSI, NCCDS, SN, TDRS, DAS, DASCON*

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# Section 1. Introduction

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## 1.1 Purpose

This Space Network (SN) Web Services Interface (SWSI) Client Software User's Guide provides instructions for operating the SWSI Client software in support of SN customer mission operations.

## 1.2 Background

The primary function of SWSI is to provide a secure network-based Graphical User Interface (GUI) to the Network Control Center (NCC) Data System (NCCDS) and to the Demand Access System (DAS) to perform SN customer scheduling, real-time service monitoring and control, and state vector storage. The SWSI provides the following capabilities:

- Standards-based customer interface for performing TDRS scheduling, real-time service monitoring and control
- Access from the Internet and NASA Integrated Services Network (NISN) Open & Closed Internet Protocol (IP) Operational Network (IONet)
- Secure access through encryption, certification, and authentication
- Cross-platform compatible client application
- Java-based GUI
- Supports full NCCDS/Mission Operations Center (MOC) interface, including flexible scheduling
- Ability to transmit customer state vectors to SN
- Orbiting or stationary state vector generation based on user input of geocentric (position & velocity) or geodetic (latitude, longitude, & altitude) coordinates
- Internet and Open IONet access to TDRSS Unscheduled Time (TUT)
- Test mode for performing Engineering Interface (EIF) testing and user training
- Minimal user requirements – Windows or Unix workstation with Java Virtual Machine (freeware), web browser, and SWSI client application software

### 1.3 Document Organization

This document is organized into 12 sections and 6 appendices. Following the Introduction (Section 1), this document presents procedures and reference material on the specified topics in the following order:

- a. SWSI Overview (Section 2).
- b. Client Installation and Setup (Section 3).
- c. General Operating Guidelines (Section 4).
- d. Startup and Login (Section 5).
- e. Main Control Panel (Section 6).
- f. Alerts (Section 7).
- g. Scheduling (Section 8).
- h. Performance Data Monitoring (Section 9).
- i. Service Reconfiguration (Section 10).
- j. State Vectors (Section 11).
- k. Service Specification Code (SSC) Administration (Section 12).
- l. Alert Messages (Appendix A).
- m. NCC Active Schedule File Format (Appendix B).
- n. DAS Active Schedule File Format (Appendix C).
- o. UPD Detail Panel Contents (Appendix D).
- p. UPD Log File Format (Appendix E).
- q. Abbreviations and Acronyms.(Appendix F).

## 1.4 Applicable Documents

- a. *Network Control Center Data System (NCCDS) System Requirements, 1998, 451-SRD-NCCDS/1998.*
- b. *Network Control Center Data System (NCCDS) Operations Concept, 1998, 451-OCD-NCCDS/1998.*
- c. *Interface Control Document Between the Network Control Center Data System and the Mission Operations Centers, 451-ICD-NCCDS/MOC.*
- d. *Interface Control Document (ICD) between the Network Control Center (NCC)/Flight Dynamics Facility (FDF) and the White Sands Complex (WSC), 530-ICD-NCC-FDF/WSC.*
- e. *Network Control Center Data System (NCCDS) Specification for World Wide Web Server for TDRSS Unscheduled Time and Nascom Information, Draft, October 1996.*
- f. *Demand Access System Operations Concept Document, 453-OCD-DAS.*
- g. *Interface Control Document Between the Demand Access System and the Space Network Web Services Interface, 451-ICD-DAS/SWSI.*
- h. *Space Network (SN) Users' Guide, 450-SNUG.*
- i. *Space Network (SN) Web Services Interface (SWSI) Security Plan, 452-SP-SWSI.*
- j. *Support Identification Code Dictionary, CSOC-GSFC-DICT-002184.*

## Section 2. SWSI Overview

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### 2.1 SWSI System Description

A block diagram showing the high level SWSI architecture is shown in Figure 2-1. A detailed knowledge of all the SWSI hardware and software components is not absolutely required to operate the SWSI Client software. However, a high-level view can be helpful toward understanding how to configure a client workstation to operate with the SWSI servers and to diagnose problems when errors should occur.

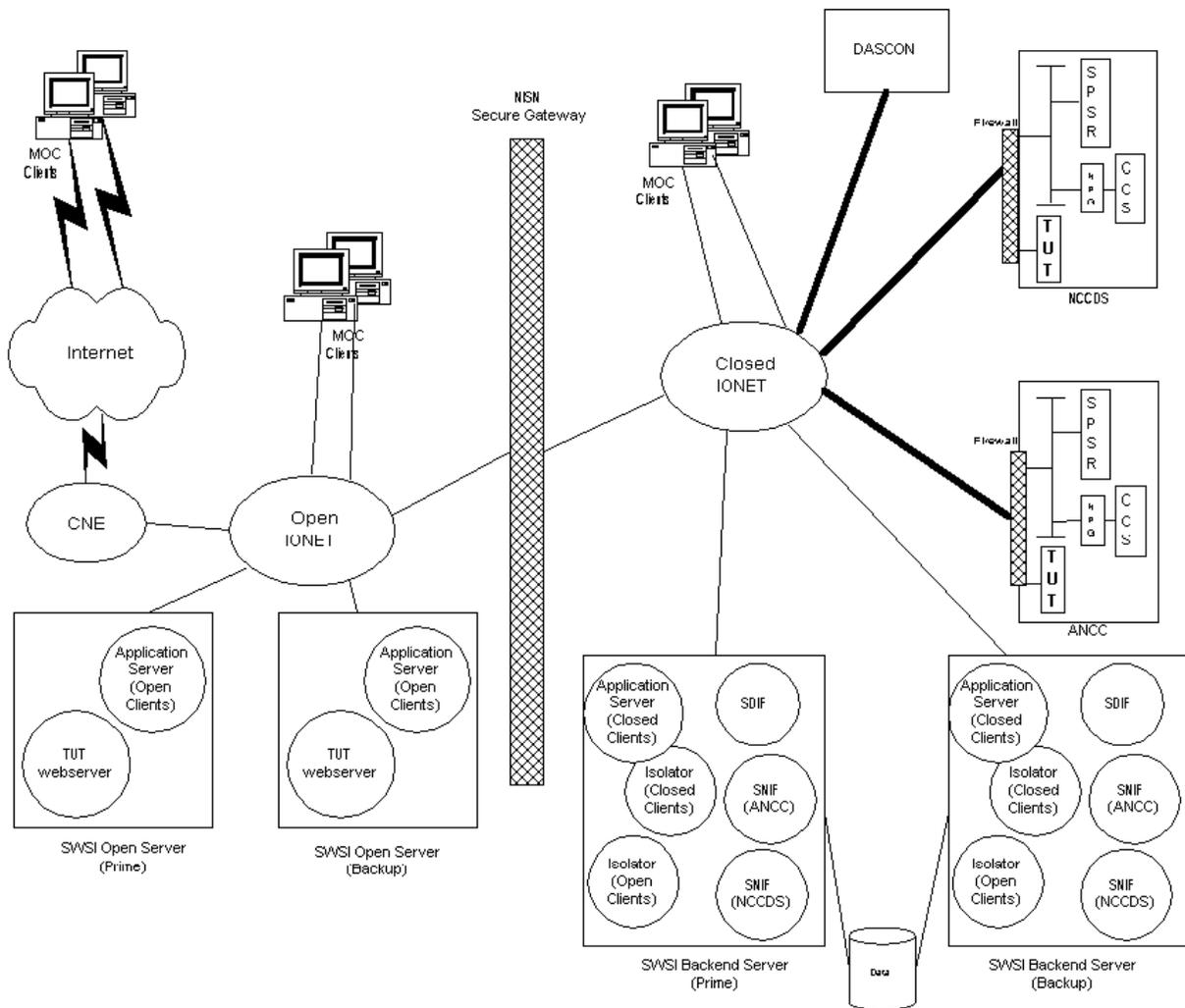
The main hardware components of SWSI are as follows:

- Client Workstation - user's desktop workstation, which can be any desktop that supports Sun Microsystems' Java Virtual Machine (JVM) 1.4.1.
- Backend Server – hosts most of the SWSI server applications; manages user login sessions, database storage, and the communications with NCCDS and DAS.
- Open Server – proxy server to allow Open IONet and Internet-based users to connect to SWSI and to access TUT. User requests are directed to Backend Server through the NISN Secure Gateway using a single predefined set of rules. This allows for the addition of new customers and users without the need for adding new Secure Gateway rules.

The main software components of SWSI are as follows:

- Client – executes on Client Workstation, provides Graphical User Interface (GUI) for performing SWSI client operations.
- Application Server – server process that the Client connects to in order to access SWSI services; keeps track of user requests and provides responses back to the Client. The Application Server runs on both the Open Server and the Backend Server.
- Isolator – server process that provides an interface for the Client with the SWSI Database; processes user requests and generates responses; communicates with the Client through the Application Server. A separate Isolator is required for each Application Server.
- SWSI-NCCDS Interface (SNIF) – server process that communicates with the NCCDS using the messaging protocol defined in the *NCCDS/Mission Operations Center (MOC) Interface Control Document (ICD)*. A separate SNIF is required to communicate with each NCCDS (operations and test).

- SWSI-DAS Interface (SDIF) – server process that communicates with the Demand Access System (DAS). Only one SDIF is required since there is no test DAS.
- Database – backend data storage; holds all customer configuration and scheduling data; allows access to customer schedules from any Client Workstation from any IP network for any authorized user.
- Open TUT Server – web server that mirrors the TUT web service provided by NCCDS on the Closed IONet. The Open TUT Server data is updated hourly.



**Figure 2-1. High Level SWSI Architecture**

## **2.2 System Environment**

### **2.2.1 General**

This section describes the environment in which the SWSI operates and briefly discusses the interactions with external systems with which the SWSI interfaces.

### **2.2.2 Network Control Center (NCC) Data System (NCCDS) Operations**

The NCC serves as the central control facility of the Spaceflight Tracking and Data Network (STDN), which consists of the Space Network (SN) and Ground Network (GN). The SN includes the Tracking and Data Relay Satellites (TDRSs) and two ground terminals, the White Sands Ground Terminal (WSGT) and the Second TDRSS Ground Terminal (STGT). The NCC schedules, controls, and ensures the reliability of the SN. The NCC is located within the Data Services Management Center (DSMC) at STGT. The SWSI communicates with the operations NCCDS on behalf of SWSI customers through implementation of the *NCCDS/MOC Interface Control Document (ICD)* protocol. All communications use Transmission Control Protocol (TCP) and are limited to those messages designated for full support customers.

### **2.2.3 Auxiliary Network Control Center (ANCC)**

The Auxiliary Network Control Center (ANCC) serves primarily as a test facility for testing new NCCDS software releases and for performing Engineering Interface (EIF) tests with customer MOCs. ANCC is located at WSGT. SWSI interfaces with the ANCC to allow SWSI customers to perform interface testing and user training.

### **2.2.4 Service Planning Segment (SPS)**

The Service Planning Segment (SPS) is the primary NCCDS subsystem used for performing SN service planning. SPS receives and validates customer service requests, generates and maintains the schedule, and disseminates the schedule to the appropriate SN elements and customers. The SPS also receives acquisition data from the Flight Dynamics Facility (FDF) and SN customers, stores the data, and disseminates acquisition data to WSGT and STGT. The SWSI maintains TCP connections with SPS for performing scheduling and vector storage on behalf of each SWSI customer.

### **2.2.5 Communications and Control Segment (CCS)**

The Communications and Control Segment (CCS) is the primary NCCDS subsystem used for performing SN service control and service assurance. Customers are able to perform real-time reconfiguration of an ongoing service through the use of Ground Control Message Requests (GCMRs). CCS is used to monitor the performance of active events and passes this information to customers in the form of User Performance Data (UPD) messages.

### **2.2.6 NCCDS Protocol Gateway (NPG)**

The NCCDS Protocol Gateway (NPG) performs message protocol translation between legacy entities that communicate in 4800 Bit Blocks and newer entities that use TCP messages. Since CCS communicates using 4800 Bit Block protocol and the SWSI communicates using TCP, the SWSI establishes real-time connections with the NPG, using the NPG as a TCP proxy for the CCS.

### **2.2.7 NCCDS TDRSS Unscheduled Time (TUT) Server**

The NCCDS TDRSS Unscheduled Time (TUT) World Wide Web (WWW) Server provides information about unscheduled TDRS resources. It consists of start and stop times of unscheduled use of the Single Access (SA), Multiple Access Forward (MAF), and S-band Multiple Access Forward (SMAF) antennas, and Multiple Access Return (MAR) and S-band Multiple Access Return (SMAR) links for each TDRS. This data is essentially the unused time in the schedule. The NCCDS TUT Server provides this service only to customers located on the Closed IONET.

### **2.2.8 Demand Access System (DAS)**

The Demand Access System (DAS) expands the existing TDRSS Multiple Access Return (MAR) capabilities by building upon the Third Generation Multiple Access Beamforming Subsystem (TGBFS). The existing TDRSs provide pre-scheduled communication service to customers by using ground-based electronics to process signals emanating from customers that are relayed by the TDRS on-board phased array antenna systems. The TGBFS expands the capability of the TDRSs MAR system and allows service to be provided on a demand basis rather than on a pre-scheduled basis.

### **2.2.9 DAS Controller (DASCON)**

The DAS Controller (DASCON) is responsible for scheduling and controlling all DAS-related hardware at the White Sands Complex (WSC). The SWSI communicates with the DASCON on behalf of SWSI customers through implementation of the *DAS/SWSI Interface Control Document (ICD)* protocol. All communications use Transmission Control Protocol (TCP).

### **2.2.10 NISN Secure Gateway**

The NISN Secure Gateway is a rule-based firewall used to prevent penetration of hosts on the Closed IONet from less secure networks. A small number of rules are used to allow connection between the Open Server and the Backend Server components. All message traffic is channeled through this path. The rule set is static, meaning that Secure Gateway changes are not required in response to SWSI customers being added or removed.

## 2.3 Concepts and Terminology

A major advantage of using the SWSI as a user interface to NCCDS is that a detailed understanding of the messaging interface as defined in the *NCCDS/MOC ICD* is not required in order to access NCCDS services. All the details of the message protocol are already implemented by SWSI on behalf of the user. However, some degree of understanding of the ICD and SN scheduling is required in order to intelligently schedule SN services and to interpret results. Rather than duplicate ICD information in this User's Guide, references are made to appropriate sections of the ICD and other documents where additional information is available.

Nevertheless, in order to provide complete information in a single guide, a brief description of some common acronyms and terms that are prerequisite to understanding SWSI usage are given below. More detailed information can be found in the *NCCDS Operations Concept Document*, the *NCCDS System Requirements Document*, and in the ICD.

- Active Period - period of time covered by published schedules.
- Active Schedule - the collection of all events for which customer requests have been granted.
- Alternate Schedule Add Request (ASAR) - alternative schedule request that allows a second choice request to be scheduled if the first choice cannot be accommodated.
- Event - A combination of services (forward and return links, tracking, and end-to-end test) in a particular time sequence and with specific durations allocated to a particular customer spacecraft using a single TDRS for a continuous period of support.
- Event ID - uniquely identifies a schedule event. It is the same value as the Request ID of the associated request message. For SWSI user-requested events, it is in the range 0,000,001 to 8,899,999. For events scheduled by a DAS operator, it is in the range 8,900,000 to 8,999,999. For events scheduled by an NCC operator, it is in the range 9,000,000 to 9,999,999.
- Fixed Event - event that has been scheduled for which resource and time allocations have been finalized.
- Flexibility - non-rigid specification of request parameters and SN services, which results in increased overall scheduling success.
- Flexible Event - event that has been scheduled, but for which resource and time allocations may not have been finally determined.
- Forecast Period - period of time in advance of publication (transmission) of the weekly schedule, during which schedule requests are received and the schedule is developed.
- Freeze Time - customer specified point at which NCCDS freezes requested start times and durations for a flexible event.
- Ground Configuration Message Request (GCMR) - sent by customer to NCCDS to reconfigure an ongoing service.

- Premium Service - event scheduled in response to a request received less than 45 minutes prior to the requested event start time and billed at a premium rate.
- Priority - The relative level of importance of each schedule add request, as specified by the customer (e.g., emergency, critical, normal, or supplemental).
- Prototype Event - combination of service specification codes, service durations, and relative start times defined in advance for a customer spacecraft for use in the scheduling process.
- Replace Request (RR) - customer request to delete a previous request or scheduled event and replace it with another. If the NCCDS is unable to effect the replacement, the original event remains on the schedule.
- Request ID - ID code in the range 0,000,001 to 8,899,999 that uniquely identifies a request message (SAR, ASAR, RR, SDR, GCMR, etc.) submitted to NCCDS.
- Schedule Add Request (SAR) - request to add a single event to the schedule.
- Schedule Delete Request (SDR) - schedule request to delete a previous request or scheduled event.
- Schedule Request - request to change a customer schedule (e.g., add, delete or replace an event).
- Schedule Result Message (SRM) - message sent from NCCDS to customer indicating disposition (granted, rejected, declined, etc.) of a schedule request.
- Service - functional support for a customer provided by the SN for a continuous period of time. Services include forward links, return links, tracking, and end-to-end test.
- Service Parameter - parameters (data rate, frequency, etc.) associated with a service.
- Service Specification Code (SSC) - code that specifies the configuration of a single service for a given customer.
- SN Customer - mission or project supported by the Space Network for operations, simulations, or testing.
- Support Identification Code (SIC) - unique four-digit identification code for a customer spacecraft.
- Support Identifier (SUPIDEN) – seven-character code used to identify the satellite or task being supported. It is broken into three parts: class, SIC, and function. Class identifies the major entity for which the support is being provided (e.g., Houston, network, GSFC). The SIC identifies the spacecraft being requested. The function is an identification of the type of support being provided (e.g., launch simulation). SUPIDEN codes and their meanings are explained in the Support Identification Code Dictionary, 532-808.
- SWSI Operator – DSMC personnel responsible for operation of the SWSI servers.
- SWSI User – individual operator of the SWSI Client application.

- TDRS Scheduling Window (TSW) – specification for a TDRS (generated by the customer or the customer designated facility) of a time period when the customer’s spacecraft may be supported by that TDRS. The TSW may be based on antenna view constraints, attitude and blockage effects, and any other mission timeline constraints that apply.
- User Performance Data (UPD) – sent from NCCDS to customer to provide performance and data quality information during an ongoing service.
- User Schedule Message (USM) – message sent from NCCDS to customer that provides details of a granted schedule request. SWSI uses USMs to construct an Active Schedule.
- Wait List Request (WLR) – request to place a declined request on a wait list.

## Section 3. Client Installation and Setup

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### 3.1 Customer Setup

The first step in becoming a SWSI user is to arrange to obtain SN services through the Customer Commitment Process. This process is described in Section 4 of the Space Network Users' Guide (SNUG). The Customer Commitment Office, NASA/GSFC Code 451, is responsible for arranging service for new missions.

Once an agreement has been reached, the mission planning phase is used to establish a DSMC configuration for the mission. The prospective customer project supplies the DSMC with information needed to fulfill mission support requirements. Customer information is maintained in the NCCDS database. Specific information in the database that is also required to configure a SWSI customer is the following:

- Spacecraft Identification Code (SIC)
- SUPIDENs
- Service Specification Codes (SSCs) and initial service parameter values
- Prototype Event Codes

This information is described in more detail in the SNUG. In addition, the following SWSI-specific information needs to be provided for inclusion in the SWSI server configuration and database:

- Schedule Request purge time – specifies in days how long after requested event start time to keep Schedule Requests before they are purged from the SWSI database. This affects how many requests are displayed in the Schedule Request Summary Panel as described in Section 8.6.
- Active Schedule upload – whether or not the customer would like to receive an Active Schedule file on connected workstations. This text file contains information about all granted requests scheduled to occur in the future with respect to transmission time of the file. The customer must also provide the following information about the upload process and file content:
  - Whether to send a new file when it changes and, if so, how often to check for changes, in minutes (default 5 minutes).
  - Whether to periodically send a new file regardless of whether there are changes and how often, in minutes (default 60 minutes).

- Whether to include initial service parameter values.
- For enumerated parameter types, whether to send the numeric value or an enumerated text string.
- User Accounts – each SWSI user must have a separate account (group accounts are not allowed). The customer should provide a list of users requiring access, to include full user name, company, mission name, geographic location, phone number, and email address. Also for each user, indicate whether they are allowed Mission Manager privileges. This allows the user to edit the initial SSC parameter values.
- Internet Protocol (IP) Addresses – a list of IP addresses for all client workstations requiring connection to the SWSI Server(s). The customer may request access for any combination of workstations located on the Closed IONet, Open IONet, or Internet. Though not always the case, IP addresses for all workstations connecting to the SWSI Servers are treated by the SWSI DBA as For Official Use Only (FOUO). Transmission of IP addresses to the DBA should be done by the following accepted means for FOUO information: voice, fax, or PGP electronic mail.

#### NOTE

SWSI maintains separate databases for operations and test modes, allowing separate settings (SSCs, user accounts, etc.) for each mode.

### 3.2 Client Workstation Setup

Following are the minimum hardware and software requirements for running the SWSI Client application:

- Java Runtime Environment (JRE) version 1.4.1.
- Any platform supporting JRE 1.4.1, although the SWSI Client application has been thoroughly tested on only Windows 98/NT/2000, Solaris 7 & 8, and Linux.
- System clock synchronized to network time or some other accurate time source. The clock must either be configured for Universal Time, or if set to Local Time, then set with the proper time zone.
- 128 Mbytes Random Access Memory (RAM).
- 2 Mbytes hard disk space (application size, excluding log space).
- 1024x768, 16 bit color display.
- Connection to Internet or NASA's IP Operation Network (IONet) (Open or Closed).
- Web browser (e.g., Netscape, Internet Explorer) to view TDRSS Unscheduled Time (TUT), and to download SWSI Client software and digital certificates.

Software and installation instructions are available from the Internet and Open IONet at <https://swsi-server.nascom.nasa.gov/> and from the Closed IONet at <https://swsi-server.ops.nascom.nasa.gov/>. The download sites also contain the appropriate JRE version for Windows, Solaris/Sparc, and Linux workstations. The following general steps are required in order to set up a client workstation:

1. Read, sign, and return the Rules of Behavior to the SWSI DBA. This document may be downloaded from the main SWSI information web page at <http://swsi.gsfc.nasa.gov/>. Provide on this form your IP address as described in Section 3.1, so that you can access one of the download sites.
2. Generate a certificate through one of the SWSI web sites. Each user should generate their own certificate with their own private passphrase. Certificates and passphrases should not be shared.
3. Download the appropriate JRE version, either from the Sun web site or from the SWSI web site, and install it on your workstation. On the SWSI web site, it is available through the *Client Software* link.
4. Download the latest version of the Client software from one of the SWSI web sites. Separate versions are provided for Windows and Unix installations.
5. Install the Client software on your workstation using the detailed instructions provided on the web site. For multiple users on a single workstation, it is recommended that each user have the software installed in a separate folder/directory. This may duplicate some information on your hard disk, but the extra space used is minimal and greatly simplifies the installation.

It should be understood that as new versions of the Client software are released to provide enhancements or fix bugs, the workstation requirements might change. This is especially true of the JRE version. The latest version of the SWSI Client software, requirements, and instructions is always available via links from the main SWSI web page at the sites listed above.

### **3.3 Open TUT Server Access**

TUT may be accessed from the Internet and Open IONet at the following address:

<https://swsi-server.nascom.nasa.gov/tut/>

The raw TUT data files, formatted as described in Table 7-23, *TDRSS Unscheduled Time File Format* in the NCCDS/MOC ICD, may be downloaded from the following addresses:

<https://swsi-server.nascom.nasa.gov/tut/eif/data/newtut.dat>  
<https://swsi-server.nascom.nasa.gov/tut/ops/data/newtut.dat>

Operation of the Open TUT web page is the same as when accessed directly through the NCCDS and ANCC TUTs on the Closed IONet, with the exception that the main SWSI Open TUT page allows selection of either Operations or EIF TUT. For instructions on how to use the TUT web page, refer to the appropriate NCCDS TUT documentation.

### 3.4 Client Invocation and Usage

A Unix shell script and Windows batch file are provided with the Client installation so that the user can easily start the application. Following is a sample Client invocation if the user would like to invoke it interactively or would like to edit the provided script. This command should be executed while in the same folder/directory as where the provided *jar* files are located:

```
java -cp SWSI-cots.jar;SWSIclient.jar gov.nasa.gsfc.swsi.client.MainControlPanel <propdir>
```

Where <propdir> is the location of the property files described in the following section. If invoked with a “-v” option as follows:

```
java -cp SWSI-cots.jar;SWSIclient.jar gov.nasa.gsfc.swsi.client.MainControlPanel -v
```

Then the Client just prints the version number and exits, similar to the following:

```
SWSI Client Application Build 3 Patch 15 Beta 2 12/03/2002
```

### 3.5 Property File (client.prop)

The *client.prop* property file is essentially a configuration or preference file that is used to set up and control the execution of the SWSI Client application. The sample property file provided with the SWSI Client download is sufficient to get started using the application, with the exception of the names of the digital certificate files as described in the installation instructions. However, there are some useful properties in this file that can be used to customize Client operation for the user.

In general, the property file may be changed with any text editor. Properties may be provided in any order. A “:” character separates the property name from its assigned value. A “!” or a “#” character at the beginning of a line is used to enter a comment. Boolean properties, which should be evident from examining the file, can have a value of *true* or *false*.

Following is a sample *client.prop* file:

```
#####  
## Login and Connection Properties . ##  
#####  
  
ServerIPAddress : swsi-server.nascom.nasa.gov  
ServerPortNumber : 3100  
eifMode : false  
selectSICsAtLogin : false  
  
UseSSL : true  
CipherSuite : SSL_RSA_WITH_3DES_EDE_CBC_SHA  
caPropFilePath : ./CA.prop  
  
CertificateAuthorityFile : ./certs/SWSI-ca-cert.der  
ClientCertificateFile : ./certs/user-cert.der  
PrivateKeyFile : ./certs/enc-user-key.der
```

CertificateExpirationWarning : 30  
AccountExpirationWarning : 30  
AckFrequencyMultiple : 30

InputBufferSize : 2048  
OutputBufferSize : 512

AutoReconnect : true  
MaxReconnectAttempts : 10  
ReconnectDelay : 60

CompressSocket : true

#####  
## Logging Properties ##  
#####

WriteToLog : true  
LogDir : ./log/current  
ArchiveDir : ./log/archive  
MaxAlertsToDisplay : 10000  
MaxLogFileSize : 100000  
SwitchLogFileAtMax : true

ttmOutputPath : ./ttm  
rctdOutputPath : ./rctdm

#####  
## UPD Properties ##  
#####

UPDDefaultFilePath : ./UPDs.prop

DASUPDPrimaryExpirationTime : 120  
DASUPDSecondaryExpirationTime : 360  
NCCUPDPrimaryExpirationTime : 10  
NCCUPDSecondaryExpirationTime : 30

UPDLogging : false  
UPDLogDir : ./upd/current  
UPDArchiveDir : ./upd/archive  
UPDMaxLogSize : 1048576

#####  
## Active Schedule Properties ##  
#####

asEnable : true  
asOutputPath : ./active\_sched

#####  
## State Vector Properties ##  
#####

```
VectorQueuePollTime : 5
VectorQueueNCC : ./sv_NCC
VectorQueueDAS : ./sv_DAS
VectorArchiveNCC : ./sv_NCC/archive
VectorArchiveDAS : ./sv_DAS/archive
```

```
#####
## TSW Properties ##
#####
```

```
TSWQueuePollTime : 5
TSWQueue : ./tsw
TSWArchive : ./tsw/archive
```

```
#####
## DAS Playback Properties ##
#####
```

```
DefaultPlaybackIP : 123.123.123.123
DefaultPlaybackPort : 07222
```

```
#####
## Alert Panel Properties ##
#####
```

```
BringToFront : false
DisplayWarnings : true
```

```
#####
## Debug Properties ##
#####
```

```
SSLDebug : false
ClientDebug : false
```

The meaning of each property is given below:

- **ServerIPAddress** – fully qualified domain name or IP address of the server used in the Login Panel. This is normally set to *swsi-server.nascom.nasa.gov* for connection from the Internet or Open IONet, or *swsi-server.ops.nascom.nasa.gov* for connection from the Closed IONet.
- **ServerPortNumber** – Transmission Control Protocol (TCP) port number for the socket connection to the server used in the Login Panel.
- **eifMode** (optional) – defines whether to open the Login Panel with EIF mode selected. If *false* or not present, OPS mode is selected.
- **SelectSICsAtLogin** – for multimission users, defines whether a dialog will appear prior to completion of login to allow selection of which SICs will be used for that session. This is normally set to *false* since most users are authorized for only a single SIC. Setting to *false* also indicates to use all authorized SICs for each session.

- UseSSL – defines whether the socket connection to the server will be encrypted. Since the operational servers do not allow unencrypted connections, this should always be set to *true*.
- CipherSuite – defines the algorithm used to establish the SSL connection to the server. This is normally set to match the setting on the server and should not be changed unless under the direction of the SWSI DBA or System Administrator.
- CaPropFilePath – file name of the properties file that contains the fingerprint(s) of the Certificate Authority’s public certificate that is to be accepted. The file is distributed with the Client software, and should not be changed unless under the direction of the SWSI DBA or System Administrator.
- CertificateAuthorityFile – file name of the certificate authority’s public digital certificate. This is used to check the digital signature on the certificate presented by the server for authentication. The file is distributed with the Client software, and should not be changed unless under the direction of the SWSI DBA or System Administrator.
- ClientCertificateFile – file name of the user’s public digital certificate. The user enters this when installing the Client software for the first time, or when installing a new certificate with a different file name.
- PrivateKeyFile – file name of the user’s encrypted private key file. This is used to digitally sign the public digital certificate for presentation to the server. The user enters this when installing the Client software for the first time, or when installing a new certificate with a different file name.
- CertificateExpirationWarning – number of days before a certificate expires that the user will receive an expiration warning during login. The warning will appear during each login session until a new certificate is installed. Certificates are generated with an expiration of 365 days. The warning value is initially set to 30 days.
- AccountExpirationWarning – number of days before a user’s account expires that the user will receive an expiration warning during login. The warning will appear during each login session until the account is renewed. The SWSI DBA sets the account expiration time.
- AckFrequencyMultiple – maximum time, in seconds, that the Client should wait before sending an acknowledgment (ack) to the server when the Client is receiving no data. The Client normally sends an ack after receiving data from the server, but only after the Client is able to process all the outstanding data on the socket. The redundant ack produced by this time ensures that the Client continues to receive data even if the server fails to receive the normal ack. The ack timeout also functions as a keepalive message to notify the Client when a connection problem has occurred, so that the connection doesn’t remain in a half-open state where the server has closed the connection but the Client may think it is still open.

- `InputBufferSize` – TCP socket read buffer size, normally set to match the server’s output buffer size. The user should not change this unless directed to do so by the SWSI DBA or System Administrator.
- `OutputBufferSize` – TCP socket write buffer size, normally set to match the server’s input buffer size. The user should not change this unless directed to do so by the SWSI DBA or System Administrator.
- `AutoReconnect` – option to try to automatically reconnect to the server if the socket connection to the server is lost.
- `MaxReconnectAttempts` – if `AutoReconnect` is *true*, this property is the maximum number of reconnection attempts that will be made each time the connection is lost. If `AutoReconnect` is *false*, this property has no effect.
- `ReconnectDelay` – if `AutoReconnect` is *true*, this is the delay in seconds between each reconnection attempt.
- `CompressSocket` – indicates whether incoming data on TCP socket is compressed. This is normally set to match the setting on the server and should not be changed unless under the direction of the SWSI DBA or System Administrator.
- `WriteToLog` – indicates whether alerts should be logged. Alerts are logged to a file if this is set to *true*.
- `LogDir` – directory where the current (active) log file is created.
- `ArchiveDir` – directory to which archived (old) log files are moved.
- `MaxAlertsToDisplay` – buffer size for the Alert Panel. This indicates how many messages are kept on the scrollable panel. When the number of messages exceeds this amount, the earliest messages are removed.
- `MaxLogFileSize` – maximum output log file size in bytes. When the log file reaches this size and `SwitchLogFileAtMax` is set to *true*, the current log file is closed and a new log file is started.
- `SwitchLogFileAtMax` – indicates whether a new log file should be started if the current log file’s size reaches the `MaxLogFileSize`.
- `ttmOutputPath` – directory to which files containing Time Transfer Messages (TTMs) received from NCCDS are written.
- `rcTdOutputPath` – directory to which files containing Return Channel Time Delay (RCTD) messages received from NCCDS are written.
- `UPDDefaultFilePath` – for User Performance Data (UPD), this property defines the path to the properties file that defines the default UPD layouts to use for each SIC and service type.

- `DASUPDPPrimaryExpirationTime` – time in seconds by which another DAS UPD must arrive after which a service is flagged as expired.
- `DASUPDSecondaryExpirationTime` – time in seconds by which another DAS UPD must arrive after which a service is removed from the list of active services in the UPD Summary Frame.
- `NCCUPDPPrimaryExpirationTime` – time in seconds by which another NCC UPD must arrive after which a service is flagged as expired.
- `NCCUPDSecondaryExpirationTime` – time in seconds by which another NCC UPD must arrive after which a service is removed from the list of active services in the UPD Summary Frame.
- `UPDLogging` – defines whether UPD messages received from NCCDS or DAS are logged.
- `UPDLogDir` – directory where UPD messages received from NCCDS or DAS are written to.
- `UPDArchiveDir` – directory to which archived (old) UPD messages are moved.
- `UPDMaxLogSize` – maximum UPD log file size in bytes. When the UPD log file reaches this size, the current UPD log file is closed and a new UPD log file is started.
- `asEnable` – defines whether the Active Schedules received automatically from the SWSI server are written to files.
- `asOutputPath` – directory where Active Schedule files received automatically from the SWSI server are stored. If `asEnable` is *false*, this property has no effect.
- `VectorQueuePollTime` – time (in minutes) delay between searches for state vector files.
- `VectorQueueNCC` – directory that is searched for user-created NCC state vector files.
- `VectorQueueDAS` – directory that is searched for user-created DAS state vector files.
- `VectorArchiveNCC` – directory to which old NCC state vector files are moved after transmission.
- `VectorArchiveDAS` – directory to which old DAS state vector files are moved after transmission.
- `TSWQueuePollTime` – time (in minutes) delay between searches for TDRS Scheduling Window (TSW) files.
- `TSWQueue` – directory that is searched for user-created TSW files.
- `TSWArchive` – directory to which old TSW files are moved after transmission.

- DefaultPlaybackIP – default Destination IP Address for DAS Playback Planning Requests.
- DefaultPlaybackPort – default Destination Port Number for DAS Playback Planning Requests.
- BringToFront – option to bring the Alert Panel to the front (on top of any open panels or windows) when an alert message is received. Note that if the *Set Warnings* option in the Alert Panel is set and a critical message is received, the pop-up message will bring the Alert Panel to the front even if the *BringToFront* property is *false*. For more details on the Alert Panel, see Section 7.
- DisplayWarnings – defines whether to display a dialog box whenever a critical (red) alert is received. If *true*, display a dialog box.
- SSLDebug – defines whether debug output is generated by the SSL security system. If *true*, generate debug output. This is normally only useful to a developer when trying to troubleshoot problems. This can generate a lot of output, thus slowing down the SSL connection, so it is normally set to *false*.
- ClientDebug – defines whether debug output is generated by the Client application. As with SSLDebug, this is normally only useful to a developer when trying to troubleshoot problems.

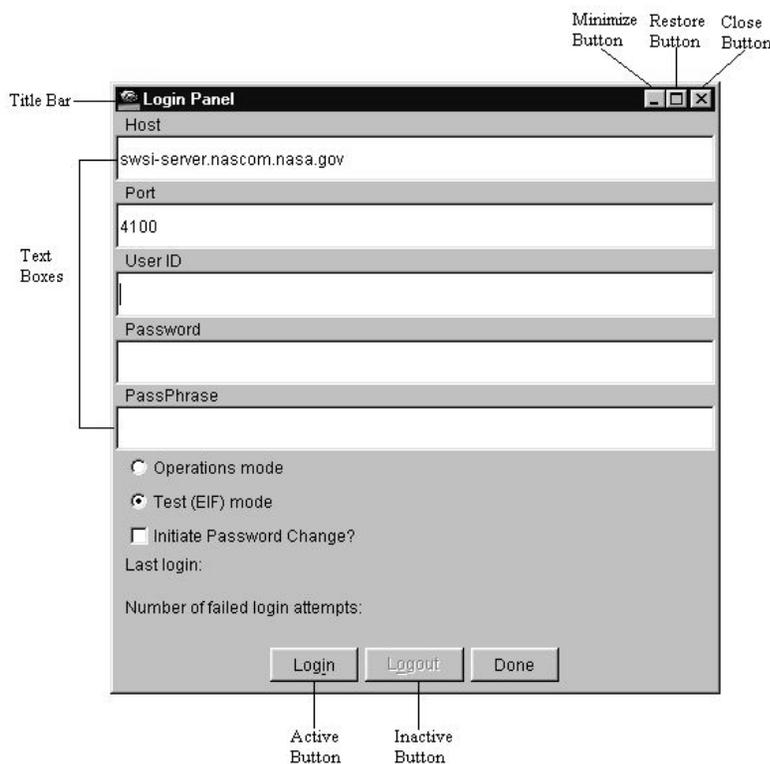
## Section 4. General Operating Guidelines

### 4.1 Introduction

The SWSI GUI consists of numerous SWSI panels that provide the means for a user to interact with the SWSI system. The GUI is loaded onto the client workstation and accepts user input from the keyboard and mouse. User data requests are sent to the SWSI server for processing.

### 4.2 Panels and Windows

A panel or window is a display area that is surrounded by a border. Some borders can be resized by moving the cursor to their edge and holding down the left mouse button while dragging the cursor. The edge of the window can be dragged to enlarge or reduce the current display size. Panels and windows are used interchangeably throughout this guide. An example of a window is shown in Figure 4-1.



**Figure 4-1. Sample Window**

### **4.3 Mouse Movement**

To perform a mouse click or clicks, move the cursor to the designated GUI component (button, menu selection, etc.) and press and release the left mouse button once. Clicking using the right mouse button will be explicitly stated as *click with the right mouse button*.

### **4.4 Minimize Button**

The Minimize button is located on the upper right hand corner of most windows. Clicking on the Minimize button reduces the window to an icon. On Windows platforms, this icon appears on the task bar. Note that not all panels or windows are iconifiable.

To restore a minimized window, point to the icon of the desired window and double click the left mouse button. The window opens at the same position it occupied before being iconified.

### **4.5 Close Button**

On Windows platforms, the Close button is located on the upper right hand corner of all windows. Clicking on the Close button normally causes the window to be removed from the user's display.

### **4.6 Window Title Bar**

The Window Identification bar, located at the top of each window, displays the name of the window. Only one window will be active at a time. The title bar of the active window is shown in a different color than that of inactive windows. To establish an active window, move the cursor to the desired window and click the left mouse button. Characters typed on the keyboard are sent to components within the active window.

### **4.7 Active Buttons**

Buttons with black text labels are active and perform an action if clicked upon.

### **4.8 Inactive Buttons**

Buttons with gray text labels are desensitized and inactive. Buttons in this state will not perform any actions if clicked upon.

### **4.9 Radio Button**

A radio button is a labeled set of choices with a small button to the left of each choice. Only one value in a radio button may be selected at a time. The currently selected value is represented by the button that looks depressed (pushed in).

#### **4.10 Combination Box**

A combination box provides a way to select one of a set of options and is similar to a radio button in operation. A combination box looks like a text box that shows the current selection with a down arrow button on the right. When pressed, the down arrow displays a menu of text choices.

#### **4.11 Scrollbars**

A scrollbar is an object that allows you to view a large window within a smaller window called a viewport. Manipulating a scrollbar allows you to view portions of a larger window through the viewport. A scrollbar has three components: the scroll arrows, the scroll region, and the scroll box. The scroll box will change size depending on the percentage of information visible in the viewport. If all information is visible, the box will occupy the entire region (if the scrollbar remains visible). Scroll bars may be oriented vertically or horizontally. Use the scrollbar by clicking on the scroll arrows or by dragging the scroll box.

#### **4.12 Time Component**

A number of time entry objects can be found throughout the SWSI Client. You can modify each of the components by using the up or down arrows or by typing the new value. Position the mouse cursor over the value of the time component you wish to change (year, day, hour, minute, or second). Left click on that field. Click the arrow buttons to increase or decrease the highlighted field or type in the new value.

#### **4.13 Text Box**

Some windows contain one or more Text boxes. A Text box is any place within which the user can type text or numbers on the screen.

#### **4.14 Dialog Box**

Dialog boxes are usually small windows containing a textual message that provide information pertinent for the current operational context. They may solicit a response from the user and may be of type Information, Alert, Note, or Error.

#### **4.15 Menu Bars**

Windows may have a bar of pulldown menus that provide various operations for control. The window menu bar is located directly below the window title bar. Menu Bar pulldown menus are accessed by moving the cursor over the desired label and clicking on the left mouse button. To select a menu entry on the resulting pulldown menu, drag the cursor along the menu until the desired option is highlighted. Then click the left mouse button.

## NOTE

“...” indicates that another submenu will be displayed. Entries without a “...” perform an action immediately.

### **4.16 Tabular Displays**

Tabular displays show data in tables. These tables can usually be sorted by column by clicking on the column header. Columns can be reordered by dragging a column header across other headers. Entries can be selected by clicking on the desired row.

## Section 5. Startup and Login

---

### 5.1 Startup

To start the Client application, use one of the startup scripts provided with the Client distribution. For Unix systems, use the *runclient.csh* script. Be sure to first edit the script for your environment as described in the installation instructions. For Windows systems use the *runclient.bat* batch file or the shortcut created as described in the installation instructions. For either platform the Client may also be invoked as described in Section 3.4.

If the Client is started successfully, the startup screen shown in Figure 5-1 is displayed. After some time while the Client initializes, the Main Control Panel and the Login Panel appear. An overview of the functions available through the Main Control Panel is provided in Section 6.



**Figure 5-1. Startup Screen**

## 5.2 Logging In

The Login Panel shown in Figure 5-2 is displayed when the Client first starts up and whenever the user logs off. This panel contains entries for the following:

- Host – fully qualified domain name or IP address of the server to connect to. Initially set according to the *ServerIPAddress* property.
- Port – Transmission Control Protocol (TCP) port number to connect to on the server. Initially set according to the *ServerPortNumber* property.
- User ID – user account name for logging into the server.
- Password – user password. Each password character appears as an asterisk as it is entered.
- PassPhrase – passphrase for the security certificate validation. This is the same passphrase entered when generating a certificate as described in step 2 of Section 3.2, Client Workstation Setup. Each passphrase character appears as an asterisk as it is entered.



The screenshot shows a dialog box titled "Login Panel" with a standard Windows-style title bar (minimize, maximize, close buttons). The dialog contains several input fields and controls:

- Host:** A text field containing "swwsi-server.nascom.nasa.gov".
- Port:** A text field containing "3100".
- User ID:** An empty text field.
- Password:** An empty text field.
- PassPhrase:** An empty text field.
- Mode Selection:** Three radio buttons: "Operations mode" (unselected), "Test (EIF) mode" (selected), and "Initiate Password Change?" (unselected).
- Status:** Labels for "Last login:" and "Number of failed login attempts:" followed by empty text fields.
- Buttons:** "Login" and "Cancel" buttons at the bottom.

**Figure 5-2. Login Panel**

Additionally, the panel contains options for *Operations* or *Test* mode. The mode selected at startup is controlled by the *eifMode*. In operations mode, the user is connected to the operations NCCDS at the Data Services Management Center (DSMC) at the White Sands Complex (WSC). In test mode, the user is connected to the Auxiliary NCC (ANCC) at WSC for performing Engineering Interface (EIF) tests or user training. Note that the SWSI server maintains separate databases for operations and test modes. The database contains User IDs and Passwords, so it is possible that an operations account may not be identical to a test account; i.e., a User ID may be valid only for operations mode, or a User ID that exists for both modes may have different passwords for each mode.

An option also exists for changing password after a successful login. It is advisable to change password on a regular basis in case it should become compromised. However, the server automatically tracks how long a password has been active and will expire a password after 60 days. When that happens, the user will be forced to change password after successful login.

Other information displayed in the panel are last login date and number of failed login attempts. The last login date is blank at startup and is not displayed until after the first login session has completed by logging out and again displaying the Login Panel. It then shows the date of the user's previous login.

The number of failed login attempts indicates how many times a login was attempted and failed, possibly because of an improperly entered User ID or password. After three failed login attempts with the same User ID, the server disables the user's account and the user must contact the SWSI DBA to have it reactivated.

To log in, enter User ID, Password, and PassPhrase. If the desired Host, Port, and Mode are different than what is displayed in these fields, then they may be changed at this time. To complete the login process, click on the Login button. At this time the Client attempts to connect to the server and displays the status box shown in Figure 5-3. Connection establishment also involves generation of digital keys, which may take 15-20 seconds. Key generation is only required the first time for each Client invocation, so subsequent connection attempts occur much more quickly.



**Figure 5-3. Establishing Connection Status Box**

Once a connection is established, the Login request is sent to the server and the status box shown in Figure 5-4 is displayed.



**Figure 5-4. Login Sent Status Box**

If the Login request is accepted, the status box shown in Figure 5-5 is displayed. The server retrieves initial setup information from the SWSI database and sends it to the Client. This setup information includes the list of SICs, SUPIDENs, and SSC codes for which the user has authorization, along with other lists, such as TDRS names and display layout information.



**Figure 5-5. Login Accepted Status Box**

Once setup information is received, the Security Warning Banner shown in Figure 5-6 is displayed. Clicking *OK* closes the dialog box and allows the user to continue. Clicking *Cancel* returns back to the Login Panel.



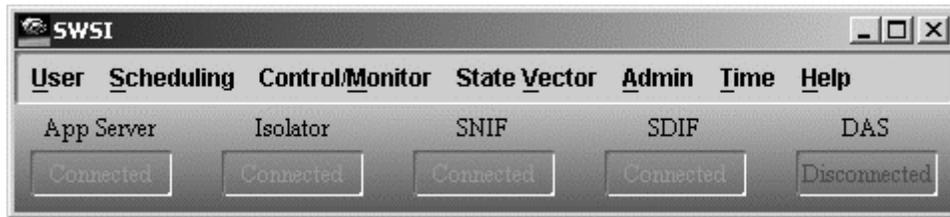
**Figure 5-6. Security Warning Dialog**

If the *SelectSICsAtLogin* property is set to *true* and the user is authorized for more than one SIC, then the SIC Selection dialog box shown in Figure 5-7 is displayed. This allows the user to select which SICs are active for this session. The NCC and DAS labels for each SIC indicates whether the SIC is authorized for using NCC (legacy) and/or DAS services. Any combination of SICs may be selected by CTRL-clicking the desired SICs. Shift-clicking allows selection of a range of SICs. Clicking *SELECT* instructs the Client to accept the selected list of SICs. Clicking *CANCEL* instructs the Client to use all authorized SICs for this session regardless of any selection(s).



**Figure 5-7. SIC Selection Dialog**

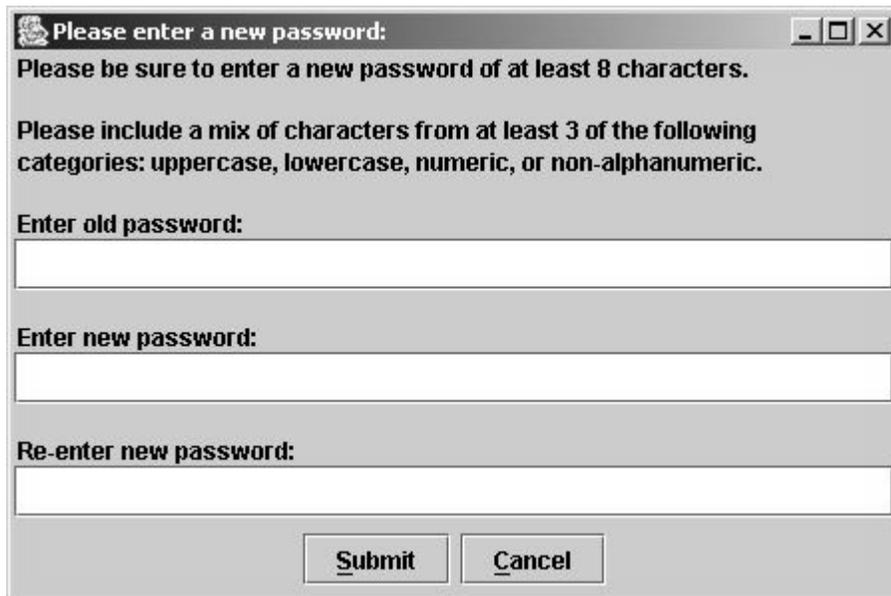
After successful SIC selection, the login process is complete and the Main Control Panel appears as shown in Figure 5-8. An overview of the functions available through this panel is provided in Section 6.



**Figure 5-8. Main Control Panel**

### 5.3 Changing Password

A password change may be initiated either by the user by selecting *Initiate Password Change* in the Login Panel, or by the server when the password has reached its 60 day expiration. In either case the dialog shown in Figure 5-9 appears after the Client has established a connection with the server.



**Figure 5-9. Password Change Dialog**

After entering the user's old password, a new password should be selected that meets the stated criteria. The password must be at least eight characters long and contain at least one character from each of three categories of characters. For example, a password with at least one uppercase, one numeric, and one non-alphanumeric (punctuation mark) character would be a valid password. After entering the new password twice for verification, the user clicks *Submit* to send the request to the server. Clicking *Cancel* causes the user's password not to be changed and for the user to login using the old password. If the old password is expired, the user will be forced to return to the Password Change Dialog and enter a new password.

After submitting the password change, the text box shown in Figure 5-10 appears. Processing of the change request by the server may take 15-20 seconds.



**Figure 5-10. Password Change Submitted Status Box**

Once the password change has been accepted, the dialog box in Figure 5-11 appears. Clicking either *OK* or *Cancel* closes the dialog box and allows the user to continue.



**Figure 5-11. Password Change Accepted Dialog**

## 5.4 Connection Problems and Automatic Reconnection

Occasionally the TCP connection between the Client and the server will be lost. This can happen due to a congested network, poor network performance, or a temporary failure of some network component. The Client has the ability to automatically reconnect to the server should the connection be lost. The following properties control reconnection behavior:

- **AutoReconnect** – if *true*, auto-reconnect is enabled.
- **MaxReconnectAttempts** – if **AutoReconnect** is *true*, this property is the maximum number of reconnection attempts that will be made each time the connection is lost. If **AutoReconnect** is *false*, this property has no effect.
- **ReconnectDelay** – if **AutoReconnect** is *true*, this is the delay in seconds between each reconnection attempt.

If the connection is lost during a session, the status box shown in Figure 5-12 is displayed. Successive attempts are then made to reconnect to the server. When successful, the login process will occur automatically, culminating in an alert indicating that reconnection was successful.

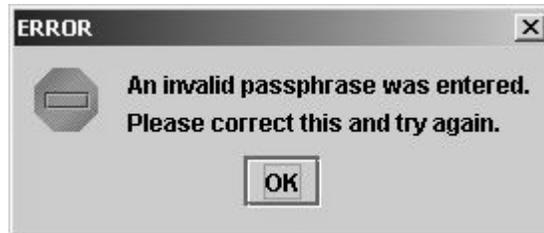
At any time during the reconnection process, the user may interrupt by selecting Log-out from the User menu on the Main Control Panel.



**Figure 5-12. Auto-Reconnect Status Box**

## 5.5 Login Problems

If a problem or error should occur during the login process, an error dialog similar to that shown in Figure 5-13 will appear. Table 5-1 lists all the error messages that can appear along with a description and solution.



**Figure 5-13. Sample Login Error Dialog**

**Table 5-1. Login Error Messages**

Error Message	Explanation
An invalid passphrase was entered.	The passphrase entered doesn't match the passphrase chosen when the digital certificate was generated.
No connection could be made to host swsi-server.nascom.nasa.gov at port #3100.	The Client was unable to connect to the server. The host and/or port name were entered incorrectly, the server is unavailable, a network problem is preventing communication with the server, or the client workstation's IP address is blocked from accessing the SWSI server.
The re-entered password did not match the first entry.	For a password change, the two new password entries did not match.
Failure changing password. The old password entered was invalid.	For a password change, the old password entry doesn't match what the server expects.
Failure changing password. Password validation failed: Invalid length password: 3	For a password change, the new password must be a minimum of eight characters.
Failure changing password. Password validation failed: Didn't meet password requirements. minimum requirements are: 3 contains lower case character: false contains upper case character: false contains numeric character: true contains special character: false	For a password change, the new password must have at least one character from each of three categories. In this case only one category, numeric characters, is represented.
Login failed for <userid>. Please make sure the account for <userid> has been activated, and that this user ID and the password entered are correct. Also make sure that another user is not logged in with the same ID from the same IP address.	The server rejected the login attempt for one of the following reasons: 1. The user ID does not exist on the server. 2. The password was entered incorrectly. 3. The account has been deactivated because of too many failed login attempts. 4. There is already another user with the same User ID logged in from the same IP address. Only one login session is allowed per User ID per IP address. 5. A previous session was interrupted by a lost connection that the server has not yet detected. The server may take up to two minutes to detect the loss, during which time the user will be unable to log in because of the single User ID per IP address rule. If still unable to login after correcting all of these problems, or if you suspect your account is not properly activated, contact the SWSI DBA or DSMC operator.
No reconnection could be made to host swsi-server.nascom.nasa.gov at port #3100. The server may be down. Please try again later using manual login.	Automatic reconnection failed.
Certificate Expiration Warning Your digital certificate will expire in 26 days. Please visit the SWSI web page to generate a new certificate.	A new digital certificate needs to be generated. See Section 3.2 for instructions.
Account Expiration Warning Your account will expire in 14 days. Please contact the SWSI System Administrator or DBA to renew your account.	User account is about to expire and must be renewed by the SWSI DBA at DSMC.

## Section 6. Main Control Panel

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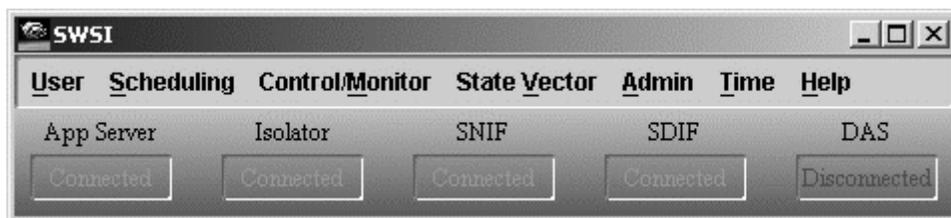
### 6.1 Server Process Status

When the Client is first started, the Main Control Panel appears as shown in Figure 6-1.



**Figure 6-1. Main Control Panel at Startup**

The body of the panel contains status/connection indicators for the Application Server, Isolator, SWSI-NCCDS Interface (SNIF) and SWSI-Demand Access System (SDIF) Interface (SDIF) server processes, and for the connection to DAS. These processes are described in more detail in Section 2.1. The status of all processes is shown as red *Disconnected* until the user performs a successful login, at which time the panel appears similarly to what is shown in Figure 6-2.



**Figure 6-2. Main Control Panel after Login**

Although the status provided is more useful to a SWSI server operator than to a Client user, it does provide the user some information that can help in assessing overall system status and to coordinate problem resolution with the SWSI operator at the Data Services Management Center (DSMC) at the White Sands Complex (WSC). In general, this is what green *Connected* status indicates for each process:

- Application Server – the user is successfully connected and logged in.
- Isolator – the server will accept and process user requests, such as reloading summary panels and submitting schedule requests.
- SNIF – messages can be exchanged with the NCCDS.
- SDIF – messages can be exchanged with the SDIF.
- DAS – messages can be exchanged with the DAS.

If the SWSI server is operating normally, then all the processes should be indicated as green *Connected*.

## 6.2 Menu Options

Figure 6-3 shows the menu options provided by the Main Control Panel. Most options are disabled until the user has logged in. NCC and DAS specific submenus under the Scheduling menu are only enabled if the user is authorized for SICs configured for NCC and/or DAS related services. The Admin menu is only enabled for users with Mission Manager privilege.

SWSI						
User	Scheduling	Control/Monitor	State Vector	Admin	Time	Help
Log-in	NCC >	Alerts	Generate Geocentric	Edit SSCs	UTC Clock	About SWSI
Log-out	Create SAR	UPDs	Generate Geodetic		Local Clock	About User
Prefs	TDRS Scheduling Window	UPD Logging	Import			Sec. Warning
Exit	DAS >					
	TDRS Visibility Request					
	Create RAR					
	Playback Planning					
	Schedule Request Summary					
	Active Schedule Summary					
	Print >					
	Schedule Request Summary					
	Active Schedule Summary					

**Figure 6-3. Main Control Panel Menu Options**

## **6.3 User Menu**

### **6.3.1 General**

The User Menu contains options for logging in and out of SWSI server, for setting display preference, and for exiting the Client.

### **6.3.2 Log-in Menu Option**

The Log-in menu option is available only if the user is not already logged in. Selection of this option causes the Login Panel to be displayed. The login process is described in Section 5.

### **6.3.3 Log-out Menu Option**

The Log-out menu option is available only if the user is logged in. Selecting *Log-out* causes the user to be logged out of and disconnected from the server. After the connection has been terminated and the user logged out, the status of all server processes changes from green *Connected* to red *Disconnected* and the Login Panel appears.

### **6.3.4 Preferences Menu Option**

The Preferences menu option is a submenu that allows selection of the Java Look and Feel (LAF). The following options are available:

- Metal Look and Feel
- Motif Look and Feel
- Windows Look and Feel
- Macintosh Look and Feel

The latter two options are proprietary and only available on the corresponding platform.

### **6.3.5 Exit Menu Option**

The Exit menu option is used to exit from the Client application. Upon termination, the user is logged out from the server and the connection is closed.

## **6.4 Scheduling Menu**

### **6.4.1 General**

The Scheduling Menu provides options for requesting TDRS service and for reviewing and printing the status of those requests. These options are described in more detail in Section 8.

## **6.4.2 NCC Scheduling Submenu**

The NCC Scheduling Submenu allows the user to access NCC-specific scheduling options. The following options are available:

- Create Schedule Add Request (SAR)
- TDRS Scheduling Window (TSW)

## **6.4.3 DAS Scheduling Submenu**

The DAS Scheduling Submenu allows the user to access DAS-specific scheduling options. The following options are available:

- TDRS Visibility Request
- Create Resource Allocation Request (RAR)
- Playback Planning

## **6.4.4 Schedule Request Summary Menu Option**

The Schedule Request Summary menu option causes the Schedule Request Summary Panel to be displayed. This panel displays a tabular summary of schedule requests previously submitted to NCC or DAS for all SICs for which the user is authorized and has selected to be active for this session.

## **6.4.5 Active Schedule Summary Menu Option**

The Active Schedule Summary menu option causes the Active Schedule Summary Panel to be displayed. This panel displays a tabular summary of all schedule requests that have been granted and added to the NCC or DAS active schedule for all SICs for which the user is authorized and has selected to be active for this session.

## **6.4.6 Print Submenu**

The Print Submenu contains options for printing Schedule Request Summary and Active Schedule Summary information.

## **6.5 Control/Monitor Menu**

### **6.5.1 General**

The Control/Monitor Menu provides options for viewing alerts and real-time performance data, and for controlling or reconfiguring ongoing services.

## **6.5.2 Alerts Menu Option**

The Alerts menu option is used to display the Alert Messages panel, allowing the user to monitor real-time alerts. This panel is described in more detail in Section 7.

## **6.5.3 User Performance Data (UPD) Menu Option**

The User Performance Data (UPD) menu option is used to display real-time performance data for ongoing services. Options within the UPD Summary Panel are used to control or reconfigure ongoing services through the use of Ground Control Message Requests (GCMRs) for NCC services and reconfiguration requests for DAS services. UPD monitoring and reconfiguration capabilities are described in more detail in Sections 9 and 10.

## **6.5.4 UPD Logging Menu Option**

The UPD Logging menu option controls whether or not UPD data is logged to a file on the client workstation. If UPD Logging is checked, then logging is enabled. UPD logging is described in more detail in paragraph 9.4.

## **6.6 State Vector Menu**

### **6.6.1 General**

The State Vector Menu provides options for importing, generating, and transmitting Improved Interrange Vectors (IIRVs) to NCCDS and/or DAS. These options are described in more detail in Section 11.

### **6.6.2 Generate Geocentric Menu Option**

The Generate Geocentric menu option allows the user to create and transmit a state vector entered in Geocentric Coordinates (XYZ position and velocity).

### **6.6.3 Generate Geodetic Menu Option**

The Generate Geodetic menu option allows the user to create and transmit a state vector entered in Geodetic Coordinates (latitude, longitude, and altitude).

### **6.6.4 Import Menu Option**

The Import menu option allows the user to select a user-generated file containing an Improved Interrange Vector (IIRV) for transmission to NCCDS and/or DAS. A standard file chooser is displayed, allowing the user to browse directories on the client workstation and select the state vector file to be transmitted.

## 6.7 Admin Menu

### 6.7.1 General

The Admin Menu provides privileged user access to mission administration options.

### 6.7.2 Edit Service Specification Codes (SSCs) Menu Option

The Edit Service Specification Codes (SSCs) menu option allows the user to edit the default parameter settings for NCCDS and DAS SSC codes. Users must be authorized with mission administration privileges for this menu option to be enabled. SSC administration is described in more detail in Section 12.

## 6.8 Time Menu

The Time Menu provides clock displays for displaying the current date and time. A sample time display is shown in Figure 6-4. Year and Julian days are used for the date display and 24-hour time is used for the time display. Separate clocks are provided for Universal Time (UT) and Local Time. Both clocks are dependent on the local time and location settings of the client workstation, for which the user is responsible.



*Figure 6-4. UTC Clock Display*

## 6.9 Help Menu

### 6.9.1 General

The Help Menu provides the About SWSI options.

### 6.9.2 About SWSI Menu Option

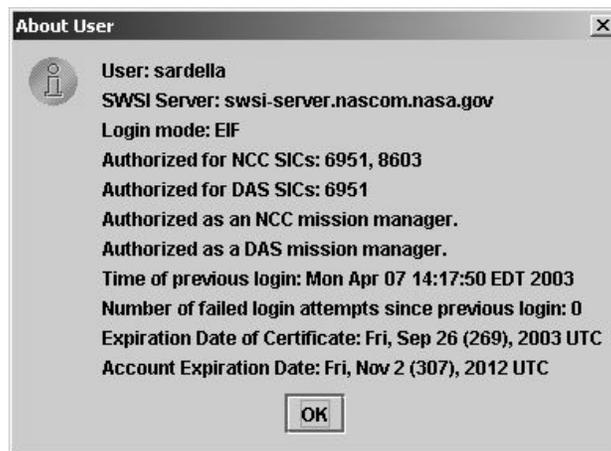
The About SWSI menu option is used to determine the version of the SWSI Client software currently running on the client workstation. An example of the About SWSI dialog box is shown in Figure 6-5. Clicking OK closes the About SWSI dialog box.



**Figure 6-5. About SWSI Informational Dialog**

### 6.9.3 About User Menu Option

The About User menu option provides information about the user's current login session, including User ID, SWSI Server name, mode, and SIC selections. An example of the About User dialog box is shown in Figure 6-6. Clicking OK closes the About User dialog box.



**Figure 6-6. About User Informational Dialog**

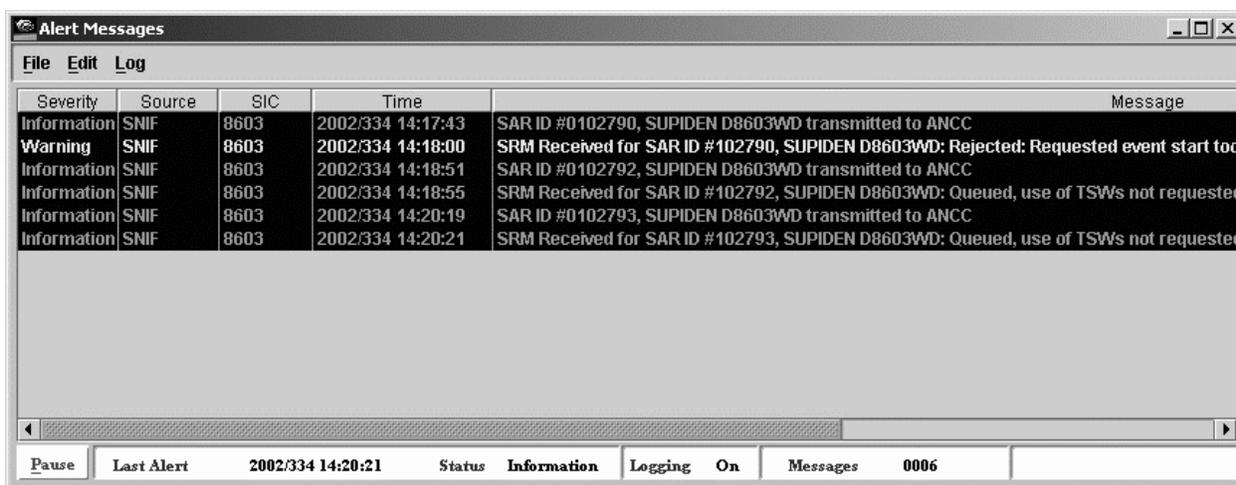
#### **6.9.4 Security Warning Menu Option**

The Security Warning menu option displays the Security Warning Banner shown in Figure 5-6. Clicking *OK* closes the dialog box and allows the user to continue. There is no *Cancel* button when the Security Warning is displayed from the Help menu.

## Section 7. Alerts

### 7.1 Alert Message Panel Overview

The Alert Message Panel is displayed automatically when the first alert is received or generated by the Client application. This panel may also be displayed manually by selecting the Alerts menu option in the Control/Monitor menu on the Main Control Panel. Figure 7-1 shows a sample Alert Message Panel.



Severity	Source	SIC	Time	Message
Information	SNIF	8603	2002/334 14:17:43	SAR ID #0102790, SUPIDEN D8603WD transmitted to ANCC
Warning	SNIF	8603	2002/334 14:18:00	SRM Received for SAR ID #102790, SUPIDEN D8603WD: Rejected: Requested event start too
Information	SNIF	8603	2002/334 14:18:51	SAR ID #0102792, SUPIDEN D8603WD transmitted to ANCC
Information	SNIF	8603	2002/334 14:18:55	SRM Received for SAR ID #102792, SUPIDEN D8603WD: Queued, use of TSWs not requested
Information	SNIF	8603	2002/334 14:20:19	SAR ID #0102793, SUPIDEN D8603WD transmitted to ANCC
Information	SNIF	8603	2002/334 14:20:21	SRM Received for SAR ID #102793, SUPIDEN D8603WD: Queued, use of TSWs not requested

Panel controls: Pause, Last Alert 2002/334 14:20:21, Status Information, Logging On, Messages 0006

**Figure 7-1. Alert Message Panel**

Each entry consists of the following items:

- Severity – color-coded indication of alert severity. The following severity levels are defined:
  - Information (green) – indicates successful processing with additional information.
  - Warning (yellow) – indicates successful processing by SWSI, but with warning information, such as a request rejected by NCCDS or a communication problem.
  - Critical (red) – a SWSI software, system, or database problem has occurred. The problem requires resolution by a SWSI operator, system administrator, DBA, or developer.

- Source – subsystem generating the alert (Client, ISO, SNIF, SDIF, or DAS). Alerts that are generated by a server subsystem (ISO, SNIF, SDIF, or DAS) appear on all connected Clients authorized for the associated SIC, regardless of which user performed the action resulting in the alert.
- SIC – Support Identification Code that the alert pertains to. Alerts are displayed only for SICs for which the user is authorized and has selected to be active for this session. A SIC of “0000” is used to broadcast alerts to all connected users.
- Time – time that alert was generated by the source subsystem.
- Message – alert message text.

Alerts can be sorted by any column by clicking on the column header. New alerts are added to the bottom of the sorted alerts. All columns can be resized by clicking and dragging the boundary between column headers. Columns can be re-ordered by clicking and dragging columns side-to-side. Rows can be selected for deletion or printing by clicking and dragging over the desired rows. Any combination of rows may also be selected by CTRL-clicking the desired rows. Shift-clicking allows selection of a range of rows.

The message text will often exceed the length of the panel. The panel can be scrolled horizontally to view the total message and/or the panel can be resized to make more of the messages visible.

A complete listing of alert messages is provided in Appendix A.

## 7.2 Status Bar

The Status Bar is located at the bottom of the Alert Message Panel and consists of the following items:

- Pause/Scroll button – alternates between pausing and automatically scrolling of the messages. In *Scroll* mode, alerts are added to the panel as they are received, with the panel automatically scrolling to the latest alerts. *Pause* mode allows the user to stop automatic scrolling to view particular alerts without having them scroll off the panel.
- Last Alert – time that most recent alert was received.
- Status – severity of most recent alert.
- Logging – indicates whether logging is currently turned on.
- Messages – total number of alert messages received for this session.

### 7.3 Properties and Alert Message Logging

The following properties are used to control the Alert Message Panel and alert message logging behavior:

- **BringToFront** – option to bring the Alert Panel to the front (on top of any open panels or windows) when an alert message is received. Note that if the *Set Warnings* option in the Alert Panel is set and a critical message is received, the pop-up message will bring the Alert Panel to the front even if the *BringToFront* parameter is *false*.
- **DisplayWarnings** – defines whether to display a dialog box whenever a critical (red) alert is received. If *true*, display a dialog box.
- **WriteToLog** – indicates whether alerts should be logged. Alerts are logged to a file if this is set to *true*.
- **LogDir** – directory where the current (active) log file is created. This directory must exist prior to running the Client application.
- **ArchiveDir** – directory to which archived (old) log files are moved. This directory must exist prior to running the Client application.
- **MaxAlertsToDisplay** – buffer size for the Alert Panel. This indicates how many messages are kept on the scrollable panel. When the number of messages exceeds this amount, the earliest messages are removed.
- **MaxLogFileSize** – maximum output log file size in bytes. When the log file reaches this size and *SwitchLogFileAtMax* is set to *true*, the current log file is closed and a new log file is started.
- **SwitchLogFileAtMax** – indicates whether a new log file should be started if the current log file's size reaches the *MaxLogFileSize*.

Log files are automatically created with names of <UserID>\_####.log where <UserID> is the UserID the Client is logged in under and “####” is an automatically generated four digit sequence number. When the Client application is first started, the *LogDir* is searched for any existing log files. If any are found, the file with the largest sequence number is checked to see if it exceeds the *MaxLogFileSize*. If not, a new header and alerts are written to the file until it is full. Once the file is full (*MaxLogFileSize reached*) and if *SwitchLogFileAtMax* is *true*, the log file is closed and moved to the *ArchiveDir*. The sequence number is then incremented and a new log file is started.

## 7.4 Alert Message Log File Format

The alert message log file is a text file which consists of header lines and log entries. Three header lines are written each time the Client logs onto the server or whenever a new log file is started. These lines consist of the following:

```
*** New SWSI session starting at: YYYY/DDD HH:MM:SS UTC
SIC    TIME                SEVERITY    SOURCE      MESSAGE TEXT
-----
```

Log entries have the following format:

```
<SIC> <alert_time>          <severity>  <source>    <message_text>
```

The value for each field is the same as described in Section 7.1.

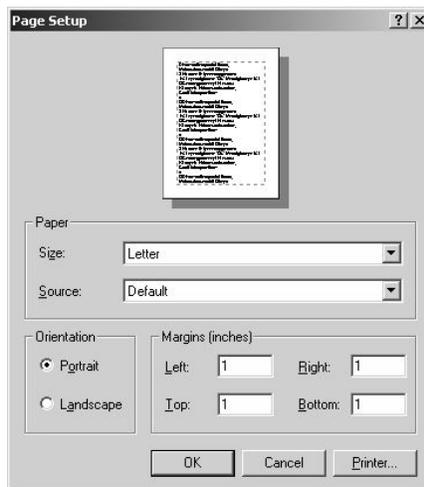
## 7.5 File Menu

### 7.5.1 General

The File Menu contains options for printing and exiting the Alert Message Panel.

### 7.5.2 Page Setup Menu Option

The Page Setup menu option is used to specify printing options prior to printing alert messages. A sample Page Setup dialog is shown in Figure 7-2. Specify print options on this dialog and click *OK* to accept print option changes. Clicking *Cancel* resets all print options to previously selected values.



**Figure 7-2. Page Setup Dialog**

### **7.5.3 Print Menu Option**

The Print menu option is used to print alert messages. Selecting Print causes the selected messages to be printed. If no messages are selected, then all the messages in the Alert Messages Panel are printed. Any combination of alerts may also be selected for printing by CTRL-clicking the desired rows. Shift-clicking allows selection of a range of alerts.

### **7.5.4 Exit Menu Option**

The Exit menu option is used to close the Alert Message Panel. Alerts will still be received and logged. If critical alerts are received and the *Set Warnings* option is on, popup warning messages will still be generated. If the *BringToFront* is set to *true*, the Alert Message Panel will automatically reappear for any alert that is received regardless of severity.

## **7.6 Edit Menu**

### **7.6.1 General**

The Edit Menu contains options for deleting messages, selecting or unselecting messages, and setting the warning level.

### **7.6.2 Delete Menu Option**

The Delete menu option is used to remove alert messages from the Alert Message Panel. Select the alert message by clicking on the desired alert, and then select the Delete menu option. The Select All may be used to select all alert messages for deletion. Any combination of alerts may also be selected for deletion by CTRL-clicking the desired rows. Shift-clicking allows selection of a range of alerts.

### **7.6.3 Select All Menu Option**

The Select All menu option is used to highlight all messages in the Alert Message Panel. Selecting Print or Delete while all messages are selected causes that action to be performed on all messages in the panel.

### **7.6.4 Unselect All Menu Option**

The Unselect All menu option is used to remove highlighting from all messages in the Alert Message Panel.

### **7.6.5 Set Warnings Menu Option**

The Set Warnings menu option is used to enable or disable the display of a critical warning dialog box every time a critical alert message is received. If a check mark appears before the Set Warnings option, then the option is enabled. This option is initially set according to the *DisplayWarnings* property value. A sample of a critical alert dialog is shown in Figure 7-3.



**Figure 7-3. Critical Alert Dialog**

## **7.7 Log Menu**

### **7.7.1 General**

The Log Menu contains options related to logging alert messages to a file.

### **7.7.2 Write Menu Option**

The Write menu option is used to enable or disable the writing of alert messages to a log file. This option is preset by the *WriteToLog* property. If a check mark appears before the Write option, then the option is enabled. The *Logging* field in the status bar also provides an indication of whether or not logging is enabled.

## Section 8. Scheduling

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### 8.1 Introduction

This section contains a detailed description of how to use the SWSI Client application to schedule SN services. It is not meant to be a comprehensive guide on how to schedule the SN or how to interface with the NCCDS or DAS. For more detailed information, refer to the *SN Users' Guide (SNUG)*, the *NCCDS Operations Concept Document*, the *NCCDS System Requirements Document*, the *NCCDS/MOC ICD*, and the *DAS/SWSI ICD*.

### 8.2 Creating an NCC Schedule Add Request

#### 8.2.1 General

The Create SAR Panel allows the user to submit a Schedule Add Request to the NCC. The panel is shown in Figure 8-1. A similar panel is used for generating Alternate SARs (ASAR) and Replace Requests (RR). A View SAR panel with the same layout is used for viewing previously submitted schedule requests. A new SAR may be created by selecting the Create SAR option in the Scheduling menu.

#### 8.2.2 Main SAR Panel

The Create or View SAR Panel consists of the following event-level items:

- Message Class – SAR, ASAR, or RR.
- Request ID – only appears when viewing previously submitted requests that have been assigned a Request ID. The server assigns the Request ID after the SAR, ASAR, or RR has been submitted.
- ReferencedRequestID – only appears for ASARs or RRs. Refers to the Request ID of the original SAR or ASAR for which an ASAR or RR is being created.
- Explanation – only appears when viewing previously submitted requests either for which a Schedule Result Message (SRM) has been received from NCCDS, or which have failed internal validation prior to transmission to NCCDS. Contains the result and explanation codes for the last SRM received, along with a text explanation. The explanation is the same as described in Table 7-5, *Valid SRM Result and Explanation Code Combinations* in the NCCDS/MOC ICD. For messages failing SWSI validation, no SRM is received. SWSI internal validation codes are shown in Table 8-1. In almost all cases, these validation errors should not occur and are an indication of a SWSI software error. SWSI development support should be notified in these cases. The one exception is the 99/02, which indicates that the SWSI database has not been properly configured. In this case the SWSI DBA at DSMC should be notified.
- SUPIDEN – Support Identifier.

- TDRS – TDRS name. For flexible scheduling this may be a TDRS set name consisting a group of actual TDRSs. NCCDS determines which actual TDRS is scheduled for the event.
- Priority – indicates relative priority for this event. “1” is the highest priority, “9” is the lowest.
- Nominal Event Start Time – requested event start time.
- Plus Tolerance – amount of time after the Nominal Event Start Time that the event may actually be scheduled.
- Minus Tolerance – amount of time before the Nominal Event Start Time that the event may actually be scheduled.
- Freeze Interval – amount of time before event start time that the NCCDS will freeze requested start times and durations. This applies only to SARs that specify flexible start times and durations.
- Use TSWs to constrain scheduling – constrain scheduling according to a customer-supplied TDRS Scheduling Window (TSW), which specifies time intervals when the customer spacecraft is able to communicate with a TDRS.
- Wait List if unscheduled – if SAR is submitted during Active Period, this flag requests that the SAR be placed on a wait list in case it cannot otherwise be scheduled.

The screenshot shows the 'Create SAR' panel with the following details:

- Message Class: SAR
- Request ID: 0000000
- Explanation: (empty text box)
- SUPIDEN: B1294CS
- TDRS: 047
- ReferencedRequestID: None
- Priority: 1
- Radio buttons:  Prototype Events,  SSC
- Nominal Event Start Time: 2003|09|19|13|00
- Plus Tolerance: 00|00|00
- Minus Tolerance: 00|00|00
- Freeze Interval: (empty)
- Checkboxes:  Use TSWs to constrain scheduling,  Wait List if unscheduled
- Service Request Table:
 

Number	SSC	Service Type	Nominal Start	Nominal Duration	CSN	SBSN	(+)Tolerance	(-)Tolerance	Min. Duration
1	A02	MAF	00:00:00	00:30:00					
2	B02	MAR	00:00:00	00:30:00					

**Figure 8-1. Create SAR Panel**

**Table 8-1. SWSI Internal Result/Explanation Codes**

<b>Result Code</b>	<b>Explanation Code</b>	<b>Result and Explanation</b>
99	01	SIC mismatch between request and Isolator message
99	02	Unable to find Schedule Connection entry for SIC
99	03	Unknown request type
99	04	Invalid or missing SIC
99	05	Invalid or missing SUPIDEN
99	06	Mismatch between SIC and SUPIDEN
99	07	Reference Request ID submitted for SAR
99	08	Missing Reference Request ID
99	09	Invalid Request Type code
99	10	Invalid or missing TDRS
99	11	Invalid priority
99	12	Invalid waitlist flag value for SAR or RR
99	13	Invalid use TSW flag value
99	14	Invalid or missing Event Start Time
99	15	Invalid or missing Event Start Time Plus Tolerance
99	16	Invalid or missing Event Start Time Minus Tolerance
99	17	Invalid or missing Event Freeze Interval
99	18	Invalid Prototype Event ID
99	19	No services or Prototype Event specified
99	20	Service out of order
99	21	Invalid or missing SSC Code
99	22	Missing Service Type
99	23	Invalid or missing Service Start Time
99	24	Invalid or missing Service Duration
99	25	Invalid value for CPR parameter
99	26	Invalid parameter value
99	27	Too many services
99	28	Customer Priority submitted for SDR or WLR
99	29	Wait List flag submitted for SDR or WLR
99	30	Use TSW value submitted for SDR or WLR
99	31	Unable to locate referenced request
99	32	Invalid or missing Wait List Expiration Time in referenced request
99	33	No TSW Set ID respecified for SAR, ASAR, or RR using TSWs

To specify service-level details when creating a SAR, the user must first select a SUPIDEN, then select whether a Prototype Event or individual services (SSCs) will be specified. Selecting Prototype Events clears the Service Request list and causes the list of available Prototype Event codes for that SUPIDEN to be displayed. A single Prototype Event may then be selected and added to the request. The Prototype Event code selected is displayed in the Service Request list, but not the services that make up the Prototype Event. Since SWSI does not provide this information, the user must know what services are included in the Prototype Event.

Selecting SSC causes the list of available SSCs for that SUPIDEN to be displayed. SSCs may then be selected and added to the request. As each SSC is added, the Service-level Flexibility Parameters panel described in Section 8.2.3 appears, allowing entry on duration and relative start time for the service. Services that are part of the request are listed in a tabular Service Request area. This table shows the services and their flexibility parameters. A service may be removed from a request by selecting the service and clicking the *Remove* button. All services may be removed by clicking the *Remove All* button. Services must be listed in the order specified in Section 7.2.1.5 of the *NCCDS/MOC ICD*. SWSI allows the services to be placed in any order, but NCCDS may reject the request if the ordering specified in the ICD is not followed. Services may be reordered by selecting a service and clicking the *Move Up* or *Move Down* buttons. For a normal event, the ordering is as follows:

1. All forward service SSCs.
2. All return service SSCs.
3. All tracking service SSCs.

For a simulation event, the ordering is as follows:

1. Forward service no. 1 SSC.
2. Simulation service (EETF) SSC for forward service no. 1.
3. Forward service no. 2 SSC.
4. Simulation service SSC for forward service no. 2.
5. Forward service no. n SSC.
6. Simulation service SSC for forward service no. n.
7. Return service no. 1 SSC.
8. Simulation service (EETR) SSC for return service no. 1.
9. Return service no. 2 SSC.
10. Simulation service (EETR) SSC for return service no. 2.
11. Return service no. n SSC.
12. Simulation service (EETR) SSC for return service no. n.
13. All tracking service SSCs.

### 8.2.3 Service Flexibility Parameters

The service-level flexibility parameters may be modified by selecting the service and clicking the *Modify Service* button. This causes the subpanel shown in Figure 8-2 to be displayed. The Nominal Duration and Nominal Start are required standard parameters that specify the duration and relative start time for the service. The five remaining parameters are optional service-level flexibility parameters that are described in detail in Table 7-3 and in Appendix D of the *NCCDS/MOC ICD*.

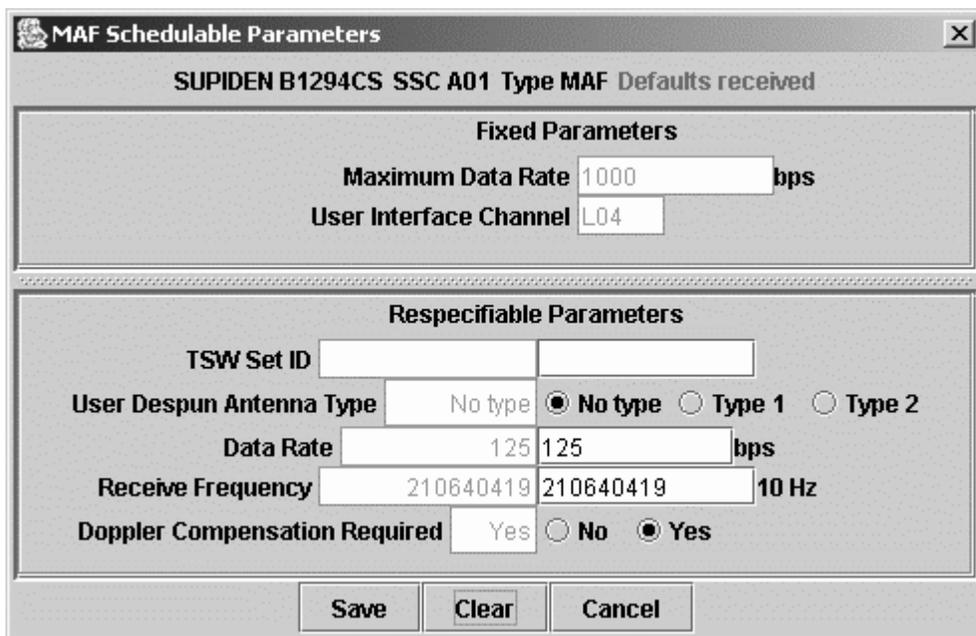
SUPIDEN	B1294CS	Service Number	01
SSC	A02	Request ID	0000000
Nominal Duration	00 30 00		↑ ↓
Nominal Start	00 00 00		↑ ↓
Plus Tolerance			↑ ↓
Minus Tolerance			↑ ↓
<input checked="" type="checkbox"/> Minimum Duration	00 00 00		↑ ↓
<input type="checkbox"/> Coupled Service Number (CSN)			
<input type="checkbox"/> Service Bounded By Service Number (SBSN)			

**Figure 8-2. Service-level Flexibility Parameters**

### 8.2.4 Service Parameters

The initial values of the parameters of a service may be viewed and edited by selecting the service and clicking the *Parameters* button. This causes a window similar to that shown in Figure 8-3 to be displayed. The list of parameters shown is dependent on the type of service. The window consists of a header that identifies the service and a split pane, with Fixed (non-editable) Parameters in the top half, Respecifiable (editable) Parameters in the bottom half, and a splitter bar separating the two. The splitter bar can be moved to display more or less of the Fixed Parameters or Respecifiable Parameters.

When the window first appears, the header contains a notice in red saying, “Default values requested”. The Client then requests the default initial SSC values from the server. Once the values are received, the window is updated and the header is changed to say, “Defaults received” in green (as shown in Figure 8-3). If the parameters have been previously edited for this service request, then the header is instead changed to say, “Existing values shown” in yellow. The user may then edit the initial values and make the parameter value changes that apply to this service request. The non-editable original SSC default or current values are shown in the left column for reference. Changes are made by editing the values in the right column. By holding the cursor over an editable numeric text box, the user can display the valid range of values for that parameter. This is shown as a popup tooltip.



**Figure 8-3. Service Parameter Values**

After making the desired changes, click the *Save* button to save the changes or click the *Cancel* button to discard the changes. The *Clear* button will reset all the parameter values to their SSC default values, allowing the user to start over. This is true even when cloning or replacing a SAR, which means that all the cloned values may be lost. Clicking *Save* causes all the changes to be validated and saved for the selected service. Validation includes format checks (i.e., making sure that the input can be parsed as numbers) and limit checks. Failed validation causes a popup message to be displayed identifying the parameter that failed and why. If the limit checks failed, the limits will be displayed as well. The user is then requested to correct the input before it can be saved. Saving the parameter values does not submit the request. The user can proceed to edit the parameters of other services or, if finished, to submit the request using the *Submit* button on the main SAR Panel.

## 8.2.5 Submitting a Schedule Request

Once the user has finished entering all the information for a schedule request, the request is submitted by clicking on the *Submit* button. This causes the request to be sent to the server, where a unique Request ID is assigned and the message is formatted for transmission to the NCCDS. Alerts are generated by the server for each step in the message exchange that results in the request either being rejected, or granted and placed on the active schedule. The Alert Message Panel may be used to monitor the progress of this exchange.

Following is a typical sequence of events for a successfully scheduled active period request:

1. The schedule request is transmitted to the NCC.
2. The NCC responds with an SRM indicating that the request has been accepted and queued for processing.
3. The NCC sends another SRM indicating that the request has been granted.
4. The NCC sends a User Schedule Message (USM), which provides details about the newly scheduled event. The SWSI server uses this information to add the event to the Active Schedule in the SWSI database.

Following is a typical sequence of events for a forecast period request:

1. The schedule request is transmitted to the NCC.
2. The NCC responds with an SRM indicating that the request has been accepted and queued for processing.

Since the request was made during the forecast period, no response will be received as to whether the request was granted or rejected until the NCC performs a batch scheduling run and activates a new schedule. When that happens, the NCC will send an SRM indicating whether the request was granted or rejected, along with a USM that SWSI uses to add the event to the Active Schedule.

Following is a typical set of alerts for the case where a schedule request is successfully granted:

SAR ID #0100845, SUPIDEN T8603EE transmitted to NCC  
SRM received for SAR ID #100845, SUPIDEN T8603EE: Queued, use of TSWs not requested or not applicable  
SRM received for SAR ID #100845, SUPIDEN T8603EE: Granted, fits in newest TSWs, based on customer request  
Fixed Normal USM received for Event ID #100845, SUPIDEN T8603EE, TDE, Start Time 02/295 05:10:00

In this case, since the request was successful, all the alerts are of green (Information) severity. Following is a case where a request is rejected:

SAR ID #0102790, SUPIDEN D8603WD transmitted to NCC  
SRM received for SAR ID #102790, SUPIDEN D8603WD: Rejected: Requested event start too close to current time

The SRM alert is of yellow (Warning) severity to indicate that there was a problem with the request such that it wasn't granted.

The SWSI server generates an alert for all SRMs and USMs received from NCCDS. The explanations shown in the SRM alert are the same as is described in Table 7-5, *Valid SRM Result and Explanation Code Combinations* in the *NCCDS/MOC ICD*.

### 8.2.6 Error Alerts

Listed in Table 8-2 are alerts indicating that a problem occurred in transmitting a schedule request outside of a normal rejection by NCCDS.

**Table 8-2. Schedule Request Error Alerts**

Error Alert Message	Severity	Explanation
Error transmitting SAR ID #xxxxxxx, SUPIDEN xxxxxxx to NCC, will retry later	Yellow	There was an error in transmitting the message to NCCDS. The message is saved and transmission will be attempted later. Another alert will be displayed when transmission is successful.
Unable to connect to NCC, will attempt later to send SAR ID #xxxxxxx, SUPIDEN xxxxxxx	Yellow	There was a problem connecting to the NCCDS. The message is saved and transmission will be attempted later. Another alert will be displayed when transmission is successful.
Schedule Request ID #xxxxxxx invalid: Unable to find Schedule Connection entry for SIC	Red	The SWSI database has not been properly configured for the SIC. The message is dropped. The SWSI DBA at DSMC should be contacted to correct the error.
Schedule Request ID #xxxxxxx invalid: <reason for invalid request>	Red	The Schedule Request is not properly formatted and will be dropped. This error should not occur and is an indication of a SWSI software error. SWSI development support should be notified.

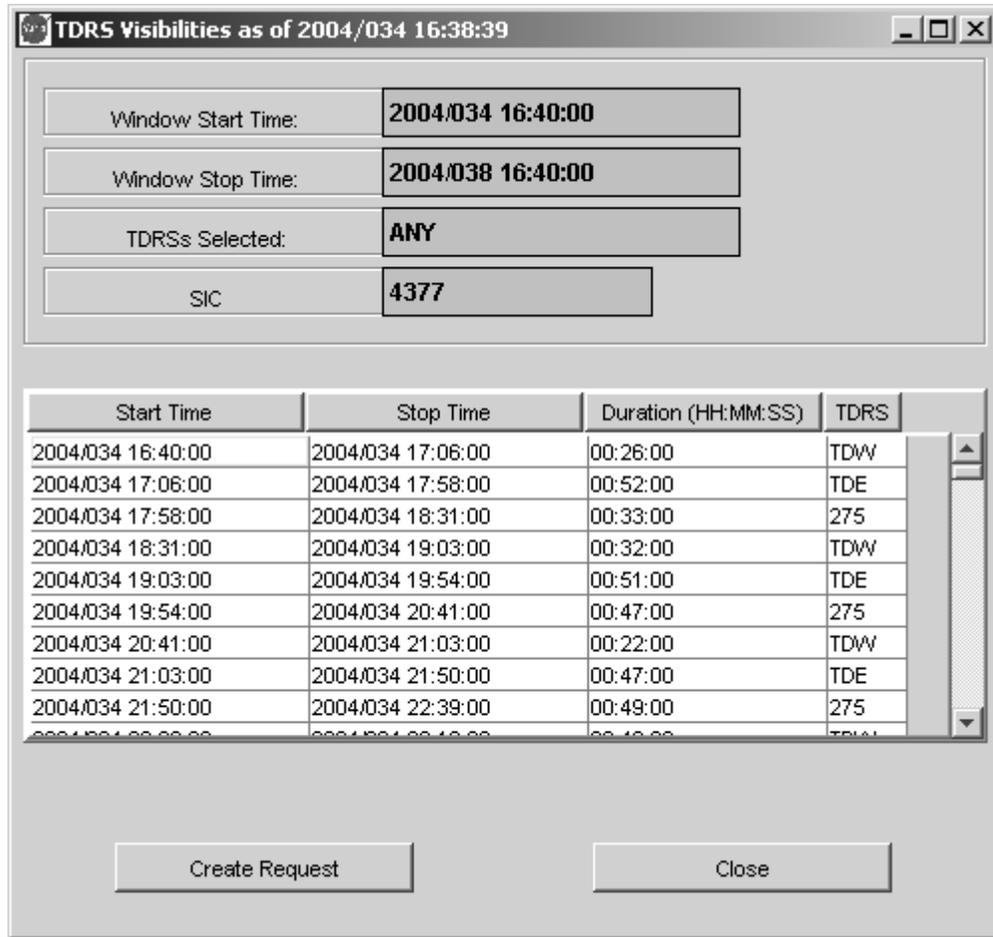
### 8.3 DAS TDRS Visibility Request

Selecting the DAS 'TDRS Visibility Request' option from the Scheduling menu of the main panel results in a panel from which the user can request a DAS resource availability report by specifying the time window within which the service is desired. This panel is shown in Figure 8-4. The 'TDRSs Selected' is a checkbox allowing multiple selections. The list of TDRSs is created from the list provided in the setup information retrieved from the database for the specific user. Either multiple TDRS or 'Any' may be selected. Any indicates no preference in selecting the TDRSs for use. In this latter case, DAS makes the TDRS selection and indicates when if any TDRS transitions would occur.¶

The image shows a software dialog box titled "DAS TDRS Visibility Request". It features several input fields and a list of options. The "Window Start Time" field is set to 2004, 034, 15, 31, 00. The "Window Stop Time" field is set to 2004, 038, 15, 31, 00. The "Maximum Lines" field is set to 999. The "SIC" field is set to 0001. The "TDRSs Selected" section has a checked box for "Any" and unchecked boxes for "171", "275", "TDE", "TDS", and "TDW". At the bottom, there are three buttons: "Submit", "Clear", and "Cancel".

**Figure 8-4. TDRS Visibility Request**

This results in a DAS TDRS Visibilities panel shown in Figure 8-5, showing the resource availability report. This DAS TDRS Visibility panel may contain additional columns indicating DAS resources available. This panel contains a non-editable header showing the corresponding DAS Visibility Request made by the user. The 'Impact' column shows, for dedicated users, what impact they might have on other missions by preempting this time slot. Impacts would be rated as being none, low, or high. A panel of this type is created for each availability request submitted. Multiple panels can be brought up to allow comparison of availabilities during different periods.



**Figure 8-5. TDRS Visibilities Panel**

#### 8.4 Creating a DAS RAR

When the DAS 'Create Resource Allocation Request' menu option is selected from the scheduling menu of the main panel, the DAS Resource Allocation Request panel, shown in Figure 8-6, is generated with blank fields. The SSC field is disabled until a SIC is selected. Then the list of SSCs for that SIC are available. Any parameters in the SSCs may be modified before submitting the request by selecting the SSC and clicking the Modify button. This uses a ServiceParmWindow(similar to the one shown in figure 8-3) and is identical to the window used to edit NCC respecifiable parameters (the SUPIDEN field in the header would be set to the SIC).

Create DAS Resource Allocation Request (RAR)

ReferencedRequest ID None      Request ID 0000000

Explanation

Service Start Time 2004 034 15 43 00

Service Stop Time 2004 034 15 43 00

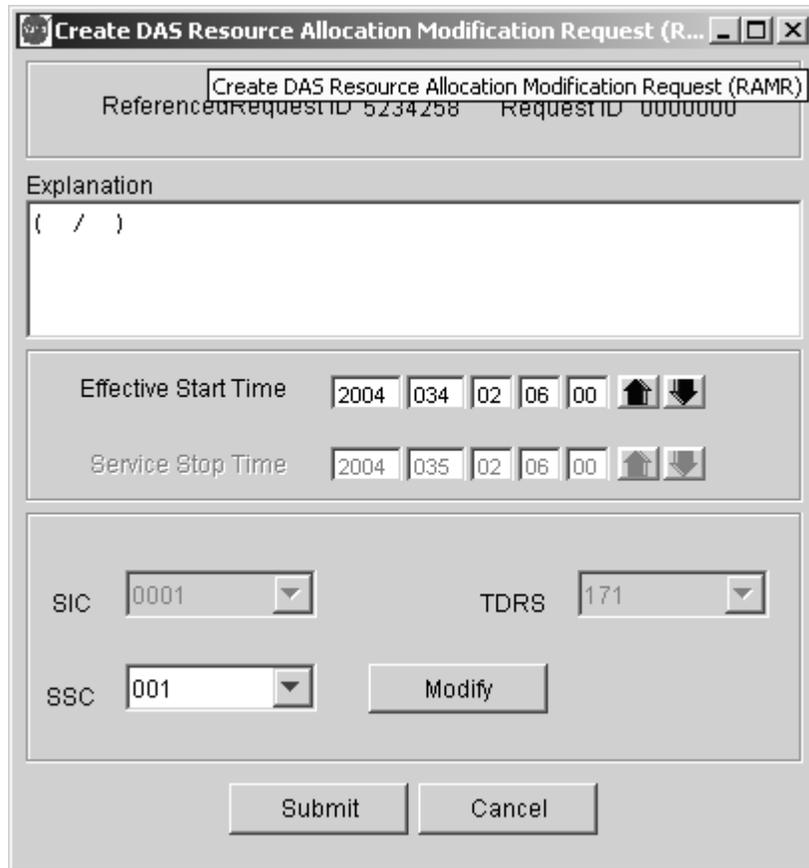
SIC 0001      TDRS ANY

SSC 001      Modify

Submit      Cancel

**Figure 8-6. Resource Allocation Request**

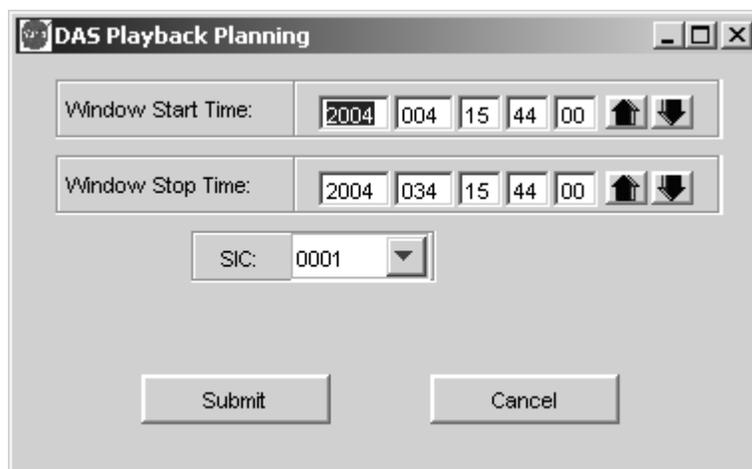
Pressing the ‘Submit’ button will cause the client application to check that the SIC, SSC, Start, and Stop times are set before forwarding the request for scheduling. A similar panel will be generated for a DAS modification request, which is shown in Figure 8-7.



**Figure 8-7. Resource Allocation Modification Request**

## 8.5 DAS Playback Planning

Selecting the DAS ‘Playback Planning’ option from the Scheduling menu of the main panel results in a menu panel in which the user can specify the time window within which data retrieval is desired. This panel is shown in Figure 8-8.¶



**Figure 8-8. Playback Planning**

The resulting DAS Playback Availability report, shown in Figure 8-9, allows the user to select and request an available playback. The user is allowed to make multiple selections from the table as part of the same playback request. The DAS response to this request is returned to the client in the form of an alert message.

The screenshot shows a window titled "DAS Playback Availabilities as of 2004/034 16:46:56". It contains several input fields and a table. The "Window Start Time" is set to "2004/004 16:46:00" and the "Window Stop Time" is set to "2004/034 16:46:00". The "SIC" field contains "4377". Below these is a table with three columns: "Start Time", "Stop Time", and "Event ID". The table lists three events: 12524, 12537, and 17053. Below the table are fields for "Desired Transmit Start Time" (set to 2004/034/16/48/00), "Destination IP Address" (123.123.123.123), and "Destination Port Number" (07222). At the bottom are "Create Request" and "Close" buttons.

Start Time	Stop Time	Event ID
2004/029 17:20:00	2004/029 17:25:20	12524
2004/029 17:25:00	2004/029 17:28:20	12537
2004/033 23:24:00	2004/034 00:12:24	17053

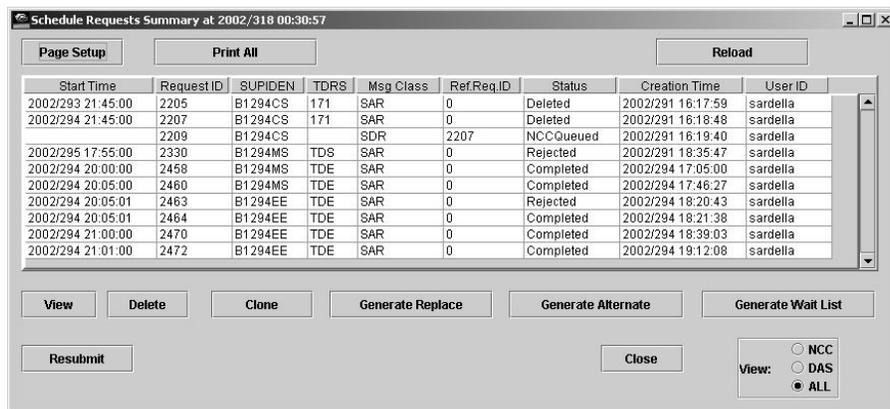
**8.6 Figure 8-9. Playback Availability**

## Schedule Request Summary

### 8.6.1 General

The Schedule Request Summary Panel displays the previous schedule requests submitted for all SICs for which the user is authorized and has selected to be active for this session. The number of requests displayed is dependent on the Schedule Request purge time discussed in Section 3.1. The panel is shown in Figure 8-10. A summary of each request is shown in tabular form. The panel is displayed by selecting the Schedule Request Summary option in the Scheduling menu. The panel initially appears with the *Reload* button disabled and labeled *Data Requested*. Once the data is received from the server, the panel is updated to display the data and the *Reload* button is enabled and labeled *Reload*. If the *Reload* button is pressed, it gets disabled and relabeled *Data Requested* until the latest data is received.

The panel title shows the time at which the latest data was retrieved from the SWSI database, or will have no time tag if data is yet to be received. It should be understood that requests made after the time in the title are not included in the display. To view the latest data, a *Reload* must be performed.



Start Time	Request ID	SUPIDEN	TDRS	Msg Class	RefReqID	Status	Creation Time	User ID
2002/293 21:45:00	2205	B1294CS	171	SAR	0	Deleted	2002/291 16:17:59	sardella
2002/294 21:45:00	2207	B1294CS	171	SAR	0	Deleted	2002/291 16:18:48	sardella
	2209	B1294CS		SDR	2207	NCCQueued	2002/291 16:19:40	sardella
2002/295 17:55:00	2330	B1294MS	TDS	SAR	0	Rejected	2002/291 18:35:47	sardella
2002/294 20:00:00	2458	B1294MS	TDE	SAR	0	Completed	2002/294 17:05:00	sardella
2002/294 20:05:00	2460	B1294MS	TDE	SAR	0	Completed	2002/294 17:46:27	sardella
2002/294 20:05:01	2463	B1294EE	TDE	SAR	0	Rejected	2002/294 18:20:43	sardella
2002/294 20:05:01	2464	B1294EE	TDE	SAR	0	Completed	2002/294 18:21:38	sardella
2002/294 21:00:00	2470	B1294EE	TDE	SAR	0	Completed	2002/294 18:39:03	sardella
2002/294 21:01:00	2472	B1294EE	TDE	SAR	0	Completed	2002/294 19:12:08	sardella

**Figure 8-10. Schedule Request Summary Panel**

Requests are initially sorted by SIC, then Creation Time. Data can be resorted by clicking on any column header. The columns are initially ordered as shown in Figure 8-10. Columns can be re-ordered by dragging a column header with the mouse. Once re-ordered, the new order remains in effect until the window is closed. Requesting updated data with the *Reload* button does not change the column order.

All previously submitted schedule requests are displayed when the panel is first opened. Users can select to view only NCC or DAS requests, or switch back to viewing all requests by using the *View* radio button and selecting *NCC*, *DAS*, or *ALL*, respectively. This will filter the existing list of requests, but not display the latest data. Clicking the *Reload* button is required to retrieve the latest data.

The panel consists of the following items:

- Start Time – requested start time for the event.
- Request ID – unique identifier assigned by the SWSI server prior to transmission to NCC or DAS.
- SUPIDEN – Support Identifier. SIC is displayed instead of SUPIDEN for DAS requests.
- TDRS – TDRS name. For flexible scheduling this may be a TDRS set name consisting a group of actual TDRSs. NCCDS determines which actual TDRS is scheduled for the event.
- Msg Class – class of request message. The list of valid message classes is shown in Table 8-3.
- Ref. Req. ID – for ASARs, RRs, Schedule Delete Requests (SDRs), and Wait List Requests (WLRs), the Request ID of the original request that is being referred to.
- Status – status of the request. The list of valid Status values and their meanings is shown in Table 8-4.
- Creation Time – the date and time that the request was created by an authorized user.
- User ID – account name of the user who initiated

The buttons in the lower portion of the panel are enabled or disabled, depending upon which request is selected and what the status of the selected request is. The following button descriptions assume that the selected request enables the button.

**Table 8-3. Message Class Values**

Message Class	Description	System
SAR	Schedule Add Request	NCC
SDR	Schedule Delete Request	NCC
RR	Replace Request	NCC
ASAR	Alternate Schedule Add Request	NCC
WLR	Wait List Request	NCC
RAR	Resource Allocation Request	DAS
RADR	Resource Allocation Deletion Request	DAS
RAMR	Resource Allocation Modification Request	DAS
PBKR	Playback Request	DAS
PBKDR	Playback Deletion Request	DAS
PBKMR	Playback Modification Request	DAS

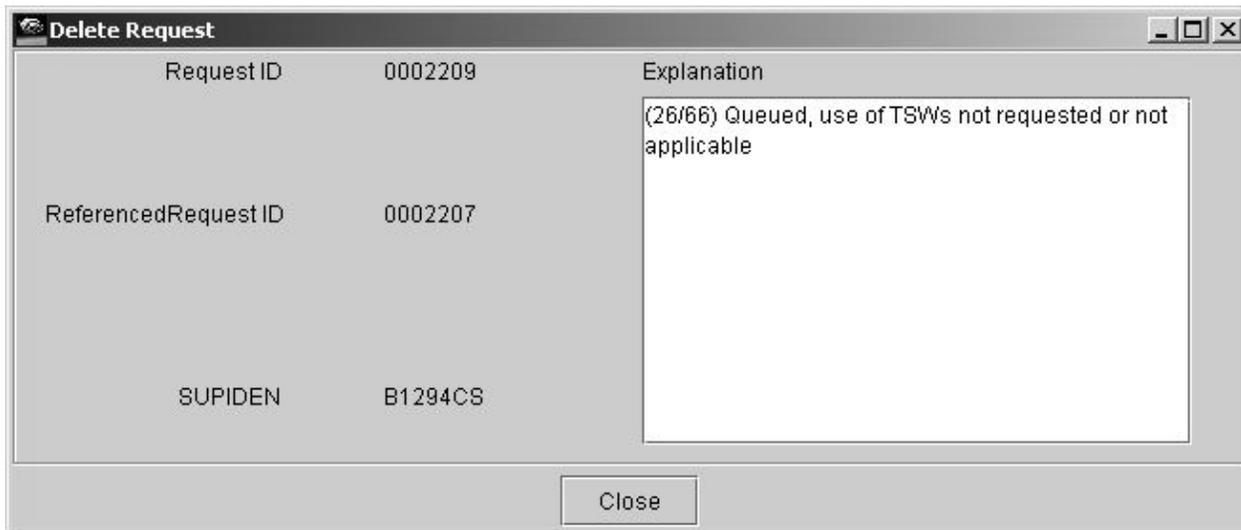
**Table 8-4. Request Status Values**

<b>Status</b>	<b>Meaning</b>
Saved	Request has been stored into the SWSI database.
Queued	Request has been queued for transmission to NCC or DAS.
Transmitted	Request has been transmitted to NCC or DAS.
Granted	Request has been granted (i.e., accepted into the active schedule)
Partially Granted	DAS request has been granted, although portions of the request are pending
Declined	NCC has declined request due to conflict.
Rejected	NCC has rejected request for some reason.
NCCQueued	Request has been queued by NCC and is waiting to be processed. If request submitted for forecast period, it will remain in queue until batch processing performed and schedule activated.
Waitlisted	Request has been placed on the NCC wait list.
Deleted	NCC, DAS, or an authorized SWSI user has deleted request.
Completed	NCC event has occurred and is complete.
Expired	NCC request start time has passed without the request being scheduled.
Pending	Request has been queued by DAS.
Invalid	NCC request has been rejected by SWSI server because of software error or SWSI database not being properly configured.

### 8.6.2 Viewing a Request

To view the details of an individual request, select the request and click the *View* button. The appropriate panel will display the contents of the selected request. For request other than delete requests (SDR, RADR, or PBKDR), this panel will look similar to the panel that was used to create the request, but without the ability to edit or submit. Click the *Cancel* or *Close* button in the panel that displays the request to close that panel. For delete requests, the display panel shows request identification information, the request’s status, and an explanation of any status codes. Figure 8-11 shows the panel for an SDR. Displays of RADRs and PBKDRs look similar.

For a view SDR, the Client application already has all the information needed to display to the user. For all other types of requests, the Client must first retrieve the request details from the SWSI database. A pop-up window appears with the title “Details Requested” and text indicating the ID of the request being retrieved. Once the details are received, the pop-up message is removed and the appropriate panel detailing the request is displayed. Similar Client behavior occurs for the *Clone*, *Generate Replace*, *Generate Alternate*, and *Generate Wait List* buttons.



**Figure 8-11. View Schedule Delete Request Panel**

### 8.6.3 Deleting a Request

All requests other than SDR, WLR, RADR, or PBKDR may be deleted if the request status is Transmitted, Granted, NCCQueued, or Waitlisted. The user may delete a request by selecting the request and clicking the *Delete* button. A dialog box appears asking for confirmation of the delete request. Clicking *Yes* causes a deletion request (SDR, RADR, or PBKDR) to be generated and transmitted to NCC or DAS, and a pop-up box saying “Deletion request sent” to be displayed.

For SDRs transmitted to NCC, the same types of alerts that appear for a SAR will also be generated for an SDR; i.e., the SDR was transmitted, an SRM was received, etc. If the SDR is “accepted”, an SRM will be received indicating that the referenced request is being deleted. However, the only SRM received for the SDR itself is one indicating that the SDR has been queued for processing (NCCQueued). The SDR therefore remains forever in an NCCQueued state from a SWSI standpoint, even though the SDR may have been successfully processed.

Deleting a request does not cause it to be removed from the Schedule Request Summary. When the SDR is accepted, the status of the deleted request is simply updated to *Deleted*.

#### **8.6.4 Cloning a Request**

SARs and RARs may be cloned by selecting the request and pressing the *Clone* button. The Client retrieves the request details and a SAR or RAR panel is displayed with those details prefilled. The user can then make any desired changes, such as to the Event Start Time, and submit the request as a new SAR or RAR. Note that care should be taken with the respecifiable parameter display for a cloned SAR. The *Clear* button on the parameter display will reset all the parameter values back to the SSC default values, and not the original SAR's parameter values.

#### **8.6.5 Replacing a Request**

All requests other than SDR, WLR, RADR, and PBKDR may be replaced if the request status is Transmitted, Granted, NCCQueued, or Waitlisted. The user may replace a request by selecting the request and clicking the *Generate Replace* button. The Client retrieves the request details and displays the appropriate panel with the reference ID set to the selected request and the request details set to the referenced request's details. The panel will look similar to the panel that was used to create the referenced request, but with a reference ID set. The user can then edit the details and submit the replace request.

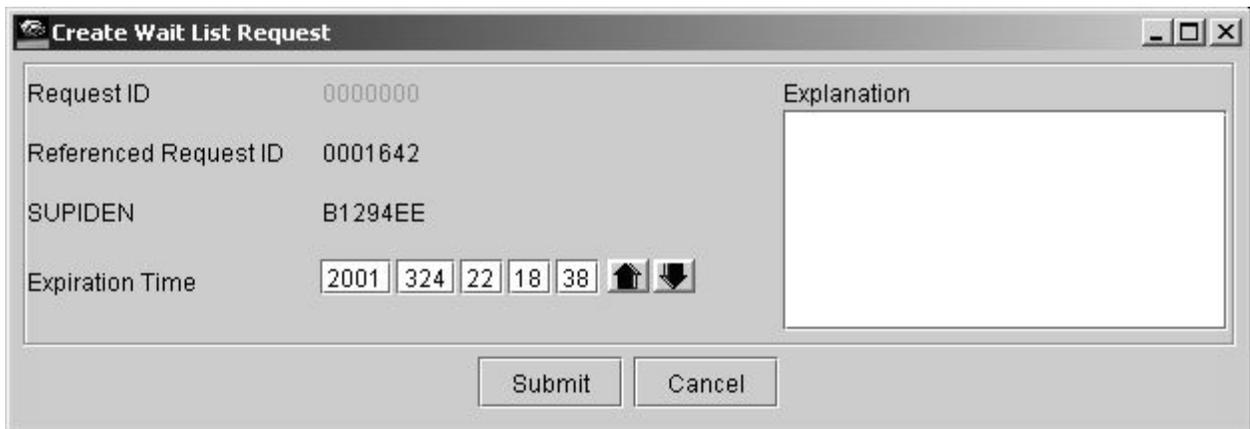
For NCC RRs, if the RR is granted, then the RR inherits the message class and reference request ID of the request that it replaced. For example, an RR that replaced an SAR will show up in the Schedule Request Summary Panel as a SAR after it has been granted. An RR that replaced an ASAR will show up as an ASAR with the same reference request ID as the ASAR that it replaced.

#### **8.6.6 Generating an Alternate SAR**

SARs, RRs, and other ASARs with a status of NCCQueued may have an Alternate SAR generated against them. The user may generate an ASAR by selecting the request and clicking the *Generate Alternate* button. The Client retrieves the request details and displays a Create Alternate SAR Panel with the reference ID set to the selected request and the request details set to the reference request details. The user can then edit the details and submit the ASAR. If an ASAR is granted, then the message class is changed by the SWSI server to SAR and it will appear as such in the Schedule Request Summary Panel.

#### **8.6.7 Generating a Wait List Request**

SARs that have been declined may be waitlisted. The user selects the request and clicks *Generate Wait List*. The panel shown in Figure 8-12 is displayed. The Referenced Request ID is automatically set to the Request ID of the referenced request. The user enters the Expiration Time. If this time is reached without successful scheduling of the request on the Wait List, the request is removed from the Wait List and an SRM is sent by NCC to indicate that the wait listing process did not result in an event being added to the schedule.



**Figure 8-12. Create Wait List Request Panel**

### 8.6.8 Resubmitting a Request

If a previously submitted request should be lost before it is received and processed by NCCDS, the Client application allows resubmission of the request with the same Request ID. The user selects the request and clicks *Resubmit*. A pop-up message will be displayed saying that the request was resubmitted.

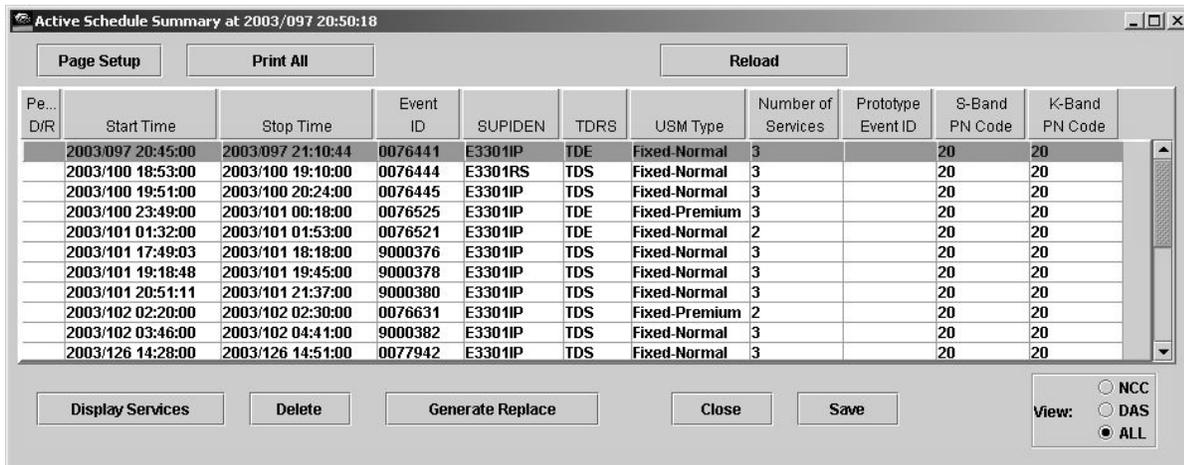
## 8.7 Active Schedule Summary

### 8.7.1 General

The Active Schedule Summary Panel displays all the requests accepted by NCC and/or DAS and scheduled to occur in the future for all SICs for which the user is authorized and has selected to be active for this session. The panel is shown in Figure 8-13. A summary of each event is shown in tabular form. The panel is displayed by selecting the Active Schedule Summary option in the Scheduling menu. The panel initially appears with the *Reload* button disabled and labeled *Data Requested*. Once the data is received from the server, the panel is updated to display the data and the *Reload* button is enabled and labeled *Reload*. If the *Reload* button is pressed, it gets disabled and relabeled *Data Requested* until the latest data is received.

The panel title shows the time at which the latest data was retrieved from the SWSI database, or will have no time tag if data is yet to be received. It should be understood that requests made after the time in the title will not be included in the display. To view the latest data, a *Reload* must be performed.

Data for NCC and DAS events are sent separately from the SWSI server to the Client. The SWSI server maintains the schedule of NCC active events, while the schedule of DAS active events is maintained by and obtained from DAS. If only part of the data has been received, the title will include a comment to that effect. Users can select to view only NCC or DAS events, or switch back to viewing all events by using the *View* radio button and selecting *NCC*, *DAS*, or *ALL*, respectively. This will filter the existing list of events, but not display the latest data. Clicking the *Reload* button is required to retrieve the latest data.



Pe... D/R	Start Time	Stop Time	Event ID	SUPIDEN	TDRS	USM Type	Number of Services	Prototype Event ID	S-Band PN Code	K-Band PN Code
	2003/097 20:45:00	2003/097 21:10:44	0076441	E3301IP	TDE	Fixed-Normal	3		20	20
	2003/100 18:53:00	2003/100 19:10:00	0076444	E3301RS	TDS	Fixed-Normal	3		20	20
	2003/100 19:51:00	2003/100 20:24:00	0076445	E3301IP	TDS	Fixed-Normal	3		20	20
	2003/100 23:49:00	2003/101 00:18:00	0076525	E3301IP	TDE	Fixed-Premium	3		20	20
	2003/101 01:32:00	2003/101 01:53:00	0076521	E3301IP	TDE	Fixed-Normal	2		20	20
	2003/101 17:49:03	2003/101 18:18:00	9000376	E3301IP	TDS	Fixed-Normal	3		20	20
	2003/101 19:18:48	2003/101 19:45:00	9000378	E3301IP	TDS	Fixed-Normal	3		20	20
	2003/101 20:51:11	2003/101 21:37:00	9000380	E3301IP	TDS	Fixed-Normal	3		20	20
	2003/102 02:20:00	2003/102 02:30:00	0076631	E3301IP	TDS	Fixed-Premium	2		20	20
	2003/102 03:46:00	2003/102 04:41:00	9000382	E3301IP	TDS	Fixed-Normal	3		20	20
	2003/126 14:28:00	2003/126 14:51:00	0077942	E3301IP	TDS	Fixed-Normal	3		20	20

**Figure 8-13. Active Schedule Summary Panel**

Events are initially sorted by Start Time. Data can be resorted by clicking on any column header. The columns are initially ordered as shown in Figure 8-12. Columns can be re-ordered by dragging a column header with the mouse. Once re-ordered, the new order remains in effect until the window is closed. Requesting updated data with the *Reload* button does not change the column order.

If an event is in progress, the background of that event is colored green. The *Generate Replace* button is disabled for ongoing events.

The panel consists of the following items:

- Pend D/R – indicates whether an NCC event is pending deletion or replacement. Pending means that an SDR or RR is either queued by SWSI for transmission to NCC, or has already been transmitted by SWSI, but that a response has not yet been received from NCCDS. If an SDR or RR is pending, a “D” or “R” is displayed in this column.
- Start Time – start time for the event.
- Stop Time - stop time for the event.

- Event ID – used by NCC or DAS to uniquely identify the event. The Event ID is identical to the Request ID of the original request that was generated to request service. For events scheduled by an NCC operator, it is in the range 9,000,000 to 9,999,999. For events scheduled by a DAS operator, it is in the range 8,900,000 – 8,999,999.
- SUPIDEN – Support Identifier. SIC is displayed instead of SUPIDEN for DAS events.
- TDRS – TDRS name.
- USM Type – in NCC terminology, the type of User Schedule Message (USM) received from NCC that was used to describe the event. DAS does not generate USMs, but the DAS event type (DASMAR or DASPBK) is nonetheless listed in this column. The list of valid USM Types is shown in Table 8-5.
- Number of Services – number of services associated with this event.
- Prototype Event ID – for NCC events scheduled using a Prototype Event.
- S-Band PN Code – PN code assignment received from NCC only.
- K-Band PN Code - PN code assignment received from NCC only.

**Table 8-5. USM Type Values**

USM Type	Description
Fixed-Normal	NCC Normal Support, Fixed Schedule
Fixed-Premium	NCC Premium Support, Fixed Schedule
Fixed-Sim	NCC Simulation Support, Fixed Schedule
Flexible-Normal	NCC Normal Support, Flexible Schedule
Flexible-Sim	NCC Simulation Support, Flexible Schedule
DASMAR	DAS MAR Service
DASPBK	DAS Playback Event

For NCC services, the Flexible USMs differ from the Fixed USMs in that some of the parameter values have not been finalized. Which parameters are not finalized depends on what flexibility was specified in the original request. For example, if a TDRS set name was specified rather than an individual TDRS, then the actual TDRS that will be used to support the event may not be finalized. The same rule applies to the Single Access (SA) Antenna, User Interface Channel ID, Event Start Time, Service Start Times, and Service Stop Times. At the Freeze Time specified by the user, the NCCDS will finalize all these parameters and transmit a Fixed USM. Refer to Section 7 of the *NCCDS/MOC ICD* for further information on how to use flexible scheduling.

The buttons in the lower portion of the panel are enabled or disabled, depending upon which event is selected and whether that event has a pending SDR or RR, or if that event is ongoing. The following button descriptions assume that the selected event enables the button.

## 8.7.2 Displaying Event Service Details

To view the service details of an individual event, select the event and click the *Display Service* button. The panel shown in Figure 8-14 is displayed for events other than a DAS Playback Request (DASPBK). The columns are initially ordered as shown in Figure 8-14. Columns can be re-ordered by dragging a column header with the mouse.

The items displayed in the top portion of the panel are event-level details inherited from the Active Schedule Summary Panel. The remainder of the panel contains a list of services for the event with the following details:

- Service Type – type of service
- SSC – Service Specification Code used to schedule the service.
- Start Time – start time for the service.
- Stop Time – stop time for the service.
- Link ID – antenna number for Single Access (SA) service, or Link ID for Multiple Access Return (MAR) service.

The screenshot shows a window titled "Service Display at 2003/097 20:51:31". It contains several input fields for event details:

- Supiden: E3301IP
- Event ID: 0076445
- Start Time: 2003/100 19:51:00
- TDRS: TDS
- Stop Time: 2003/100 20:24:00
- Prototype ID: (empty)
- S-Band PN Code: 20
- K-Band PN Code: 20

Below these fields is a table with the following data:

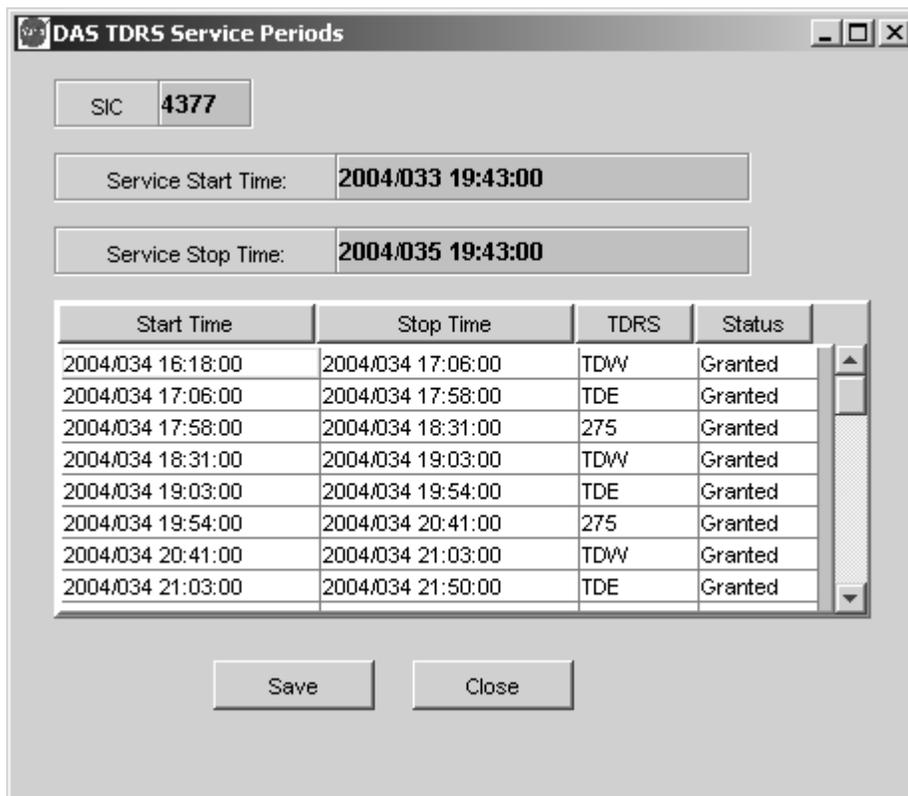
Service Type	SSC	Start Time	Stop Time	Link ID
SSAF	H50	2003/100 19:51:00	2003/100 20:24:00	1
SSAR	I50	2003/100 19:51:00	2003/100 20:24:00	1
TRKN	T80	2003/100 19:51:00	2003/100 20:24:00	

At the bottom of the window are four buttons: "Parameters...", "Generate GCMR", "View Service Periods", and "Close".

**Figure 8-14. Event Service Display**

The following buttons allows specific actions to be performed on selected services:

- Parameters – view service parameter values. A panel similar to the Service Parameter panel shown in Figure 8-3 is displayed. Only one column will appear for the respecifiable parameters and editing of the parameter values will be disabled.
- Generate GCMR – enabled only for ongoing services. Selecting a service and clicking this button will cause a Ground Control Message Request (GCMR) menu to be displayed, allowing the user to reconfigure the service. The menu panel varies depending on whether the selected service is an NCC or a DAS MAR service. GCMRs may also be initiated through the User Performance Data (UPD) Summary Panel. GCMRs are described in detail in Section 10.
- View Service Periods – This button is enabled when a DAS event is selected and the TDRS is marked as ‘Any’. This button will bring up a subpanel displaying the planned TDRS transitions for the DAS service. This panel is a viewing only panel and is shown in Figure 8-15



**Figure 8-15 DAS TDRS Service Periods**

### 8.7.3 Deleting an Event

Events may be deleted in the same way that schedule requests are deleted through the Schedule Request Summary Panel. Only events that are not already pending deletion or replacement may be deleted. Ongoing events may be deleted, resulting in early termination of service.

An event is deleted by selecting it and clicking the *Delete* button. A dialog box appears asking for confirmation of the delete request. Clicking *Yes* causes a deletion request (SDR, RADR, or PBKDR) to be generated and transmitted to NCC or DAS, and a pop-up box saying “Deletion request sent” to be displayed.

For SDRs transmitted to NCC, the same types of alerts that appear for an SDR that appear for an SDR generated via the Schedule Request Summary Panel; i.e., the SDR was transmitted, an SRM was received, etc. If the SDR is “accepted”, an SRM will be received indicating that the referenced event is being deleted. The original SAR that requested this event will appear in the Schedule Request Summary Panel with a status of *Deleted*. On the next *Reload* of the Active Schedule Summary Panel, the event will no longer be listed.

### 8.7.4 Replacing an Event

Events may be replaced in the same way that schedule requests are replaced through the Schedule Request Summary Panel. Only events that are not already pending deletion or replacement may be replaced. Ongoing events or events scheduled by the NCC operator may not be replaced.

An event is replaced by selecting it and clicking the *Generate Replace* button. The Client retrieves the associated request details and displays the appropriate panel with the reference ID set to the selected request and the request details set to the referenced request’s details. The panel will look similar to the panel that was used to create the referenced request, but with a reference ID set. The user can then edit the details and submit the replace request.

For events scheduled by an NCC operator, no details for the associated requests for these events will exist in the SWSI database. For these cases, the response to a *Generate Replace* will be a pop-up window with the following message:

*SWSI does not have any record of this request.  
The reference request may have been submitted  
directly through the NCC.  
Please contact the NCC directly  
to submit this Replace Request.*

### 8.7.5 Saving the Active Schedule to a File

The *Save* button allows the user to save the Active Schedule Summary to a Comma Separated Values (CSV) file. The data is written to the file in order of Event Start Time. The first line of the file is a header line, similar to the table header, documenting the order of the values in each subsequent line. The location of the output file is set by the user through a standard file chooser. Following is the contents of a sample output file:

```
Pending,start,stop,eventID,SUPIDEN,TDRS,usmType,numberOfServices,prototypeID,sBandP  
Ncode,kBandPNcode  
,1999/181 01:00:00,2002/340 15:42:11,0011820,A3782MS,TDW,Fixed-Normal,2, ,04,04  
,2001/289 00:10:00,2002/340 15:42:11,0000073,B1419CS,TDW,Fixed-Normal,2, ,04,04  
D,2001/289 01:11:11,2002/340 15:42:11,3794208,A0338EE,047,Fixed-Normal,1, ,4 ,4
```

This process is manual and only event-level details are provided when saving the active schedule to a file. An automated process also exists to save event-level details as well as service-level details and parameter values. This process is described in detail in Section 8.8.

## 8.8 Active Schedule File Storage

SWSI has the capability to automatically store a file containing all information for an Active Schedule, including service-level information and parameter values, in a text file on the Client workstation. When the user is logged in and the Client connected to the SWSI server, the Client will receive Active Schedule updates for all SICs for which the user is authorized and has selected to be active for that session. The parameters for this process, including how often the file is updated and what it should contain, are stored in the SWSI database. The initial settings for these parameters are established during the customer setup process described in Section 3.1 and are changed as needed by the SWSI DBA in coordination with the customer. Regardless of the parameter settings, the current Active Schedule is updated on the Client workstation whenever the user logs in.

The following properties control Active Schedule file storage behavior:

- *asEnable* – defines whether the Active Schedules received automatically from the SWSI server are written to files.
- *asOutputPath* – directory where Active Schedule files received automatically from the SWSI server are stored. If *asEnable* is *false*, this property has no effect.

Active Schedule filenames are of the form:

<MODE>\_<SystemID>\_<SIC>\_asf.txt

Where:

- MODE = OPS or EIF
- SystemID = NCC or DAS
- SIC = Support Identification Code

The MODE is the same mode, operations or test (EIF), selected at login time. Separate files are written for schedules received from NCC and DAS for each SIC.

The files are overwritten with each update. A cooperative file access protocol using a semaphore file is used to guard against problems caused when both the SWSI Client and a user application try to access the file at the same time. Before the SWSI Client writes the file, it tries to create a new “lock” file. The file naming is the same as for the active schedule file itself, except that the postfix “lock” is used. For example, the active schedule file OPS\_NCC\_1294\_asf.txt has a lock file named OPS\_NCC\_1294\_asf.lock associated with it. This lock file is written to the same directory that the active schedule file is written to. If a new lock file is successfully created, the SWSI Client writes the active schedule file. Once the file is written, the lock file is deleted. Any user application reading the active schedule files should do the same; i.e., check for and create a lock file before reading the active schedule file and deleting the lock file after completing the read. If the lock file already exists, the user application needs to wait until the lock file disappears.

Regarding a crashed SWSI Client or user application, the file lock written by the SWSI Client has as its contents the word “SWSI”. If the SWSI Client crashes, it is responsible for clearing the file lock when it is executed again. If the user application is reading the active schedule file, the word “USER” should be written to the lock file. If the user application crashes, the user is responsible for clearing the file lock when it is executed again.

The format of the Active Schedule file is described in detail in Appendix B for NCC events and in Appendix C for DAS events.

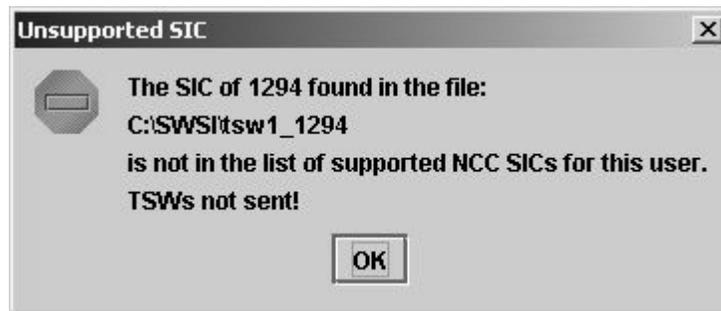
## 8.9 TDRS Scheduling Window (TSW)

### 8.9.1 General

SWSI is unable to create TDRS Scheduling Windows (TSWs), but has the capability of transmitting user-created TSW files to the NCC through the *TDRS Scheduling Window (TSW)* menu option under the *NCC* submenu under the *Scheduling* menu or through an TSW File Automatic Import feature via a locally defined directory on the client host.

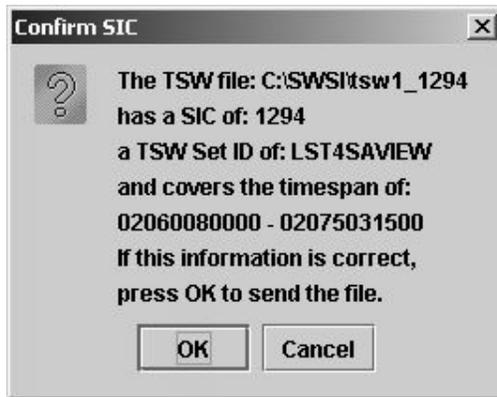
### 8.9.2 TSW File Manual Import Panel

For the TSW menu option, a standard file chooser is displayed, allowing the user to browse directories and select the TSW file to be transmitted. A user is only allowed to submit TSWs for SICs for which the user is authorized and has selected to be active for this session. If an attempt is made to send a TSW for some other SIC, the error dialog shown in Figure 8-16 is displayed.



**Figure 8-16. TSW Unsupported SIC Dialog**

Once a valid file has been selected, the confirmation dialog box shown in Figure 8-17 is displayed. Information from the file, including SIC, TSW Set ID, and Timespan, allows the user to verify that this is the correct file to send. If the information is correct, the user clicks *OK* and the file is sent to the SWSI server for transmission. The dialog box shown in Figure 8-18 appears when this is complete.



**Figure 8-17. TSW File Confirmation Dialog**



**Figure 8-18. TSW File Sent Dialog**

If transmission of the TSW to NCC is successful, a green Information alert is received, similar to the following:

TSW File TS12942002335\_193814, SUPIDEN B1294MS, TDRS TDW, Set ID LST4SAVIEW transmitted to NCC

The TSW filename is a SWSI server-generated name based on the date and time of file creation and the SIC and has no relation to the name of the file selected by the user. No response is received from the NCC acknowledging receipt of the TSW, as is the case with an SRM for a Schedule Request.

If the SWSI server is unable to connect to the NCC to transmit the message, a yellow Warning alert is received, similar to the following:

Unable to connect to NCC, will attempt later to send TSW File TS12942002335\_193814, SUPIDEN B1294MS, TDRS TDW, Set ID LST4SAVIEW

The TSW file should follow the same format as the TSW message described in Table 7-12 of the *NCCDS/MOC ICD*, with the exception of the following items:

- Message ID (item 2) – automatically generated by the SWSI server.

- User ID (item 5) – stored in the SWSI database and automatically inserted into the message by the SWSI server.
- Password (item 6) – stored in the SWSI database and automatically inserted into the message by the SWSI server.

These items may be left blank in the TSW file provided to the SWSI Client.

The TSW undergoes validation checks before transmission to NCC. A yellow Warning alert is received if the validation check fails, with an alert message stating “TSW File Invalid” and a reason for failure. Table 8-6 lists the alert messages received due to an invalid TSW.

### 8.9.3 TSW File Automatic Import Feature

The Client allows TSW files to be placed into a TSW queue directory on the user’s workstation. This queue directory should contain the user's TSW files that they wish to be sent to the NCCDS. The queue directory is periodically polled to have the client import and send the TSW files to the NCCDS. The following properties control TSW automatic import behavior:

- TSWQueuePollTime – time (in minutes) delay between searches for TDRS Scheduling Window (TSW) files.
- TSWQueue – directory that is searched for user-created TSW files.
- TSWArchive – directory to which old TSW files are moved after transmission.

The TSW undergoes validation checks before transmission to NCC. A red Critical alert is received if the validation check fails, with an alert message stating “TSW File Invalid” and a reason for failure. Table 8-6 lists the alert messages received due to an invalid TSW.

**Table 8-6. Invalid TSW Alerts**

Error Alert Message	Explanation
TSW File xxxx invalid: file too large (max size 8600 bytes)	The maximum allowed size for a TSW file has been exceeded.
TSW File xxxx invalid: invalid size	The file size is less than the minimum size. There isn't even enough data for a header (items 1-11).
TSW File xxxx invalid: invalid message type	The Message Type (item 1) should be “99”.
TSW File xxxx invalid: invalid message class	The Message Class (item 3) should be “25”.
TSW File xxxx invalid: invalid Timespan Start	The Timespan Start (Item 9) is not a valid format (YYDDHHMMSS).
TSW File xxxx invalid: invalid Timespan End	The Timespan End (Item 10) is not a valid format (YYDDHHMMSS).
TSW File xxxx invalid: TSW count/message length mismatch	The file is not the correct length based on the Number of TSWs (item 11).
TSW File xxxx Invalid: <TSW Field Name> Field	The field in error does not conform to the NCCDS/MOC ICD for TSW messages.
TSW File xxxx Invalid: Unsupported SIC found	The SIC found in this file is not supported for NCC.
TSW File xxxx Invalid: File Size	The file size is either less than the minimum size or greater than the maximum size.

## 8.10 Printing

Options are available for the user to print either the Schedule Request Summary or the Active Schedule. This can be done using either the *Print* submenu under the *Scheduling* menu, or by clicking the *Print All* button in the respective summary panel. When the print request is submitted by either method, the Client sends a print request to the SWSI server and the dialog shown in Figure 8-19 appears. After the server responds with the results, a platform-dependent print dialog will appear to allow the user to print the results.



**Figure 8-19. Print Details Requested Dialog**

Schedule requests are printed in the following order:

1. All requests are sorted/grouped by SIC.
2. Requests (SAR, RR, RAR, etc.) that are not delete or playback requests, sorted by Event Start Time.
3. DAS Playback and Playback Modification Requests, sorted by Playback Start Time.
4. Delete requests (SDR, RADR, PBKDR), and Wait List Requests (WLRs) sorted by Reference Request ID.

For the Active Schedule Summary printout, all events are first sorted by SIC, then by Event Start Time. A separate printout is provided for NCCDS and DAS events. Each printout results in a separate print dialog.

## Section 9. Performance Data Monitoring

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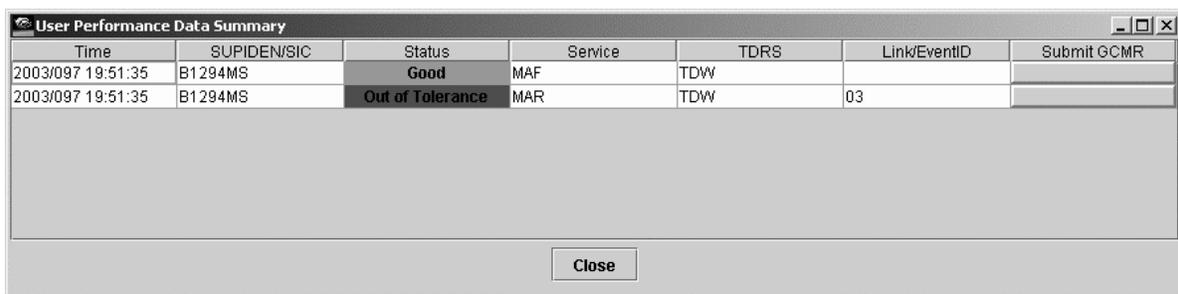
### 9.1 Introduction

Performance data encompasses all real-time messages sent by NCCDS to SWSI during an ongoing event, including User Performance Data (UPD) messages, Return Channel Time Delay (RCTD) measurements, Time Transfer Messages (TTM), and Acquisition Failure Notification (AFN). These messages are generated from within the NCCDS by the Communications and Control Segment (CCS).

CCS allows customers to selectively enable and disable performance data transmission. SWSI configures its interface with CCS such that performance data is always enabled for all missions that it supports. Whether a SWSI user actually sees the data is dependent on whether the appropriate UPD panels using the Client software are opened. There is a condition that may occur in the communication between SWSI and CCS where performance data may not be transmitted even though an event may be ongoing. In this case, the user will need to contact NCCDS operations personnel at the DSMC to ensure that the site associated with their mission has been configured as “up” on CCS.

### 9.2 User Performance Data Summary

The UPD Summary Panel provides a summary of all ongoing services for which UPD messages are being received for all SICs for which the user is authorized and has selected to be active for this session. A sample panel is shown in Figure 9-1. The panel is displayed by selecting the UPDs menu option in the Control/Monitor menu.



Time	SUPIDEN/SIC	Status	Service	TDRS	Link/EventID	Submit GCMR
2003/097 19:51:35	B1294MS	Good	MAF	TDW		
2003/097 19:51:35	B1294MS	Out of Tolerance	MAR	TDW	03	

**Figure 9-1. UPD Summary Panel**

A summary of each UPD stream is shown in tabular form. Each stream is uniquely identified by SUPIDEN, TDRS, Link ID, and UPD service type. The listing is dynamic, with streams appearing and disappearing as new UPD types are received and existing types disappear. The following properties specify the timeout values that are used to control this behavior:

- `DASUPDPPrimaryExpirationTime` – time in seconds by which another DAS UPD must arrive after which a service is flagged as expired.
- `DASUPDSecondaryExpirationTime` – time in seconds by which another DAS UPD must arrive after which a service is removed from the list of active services in the UPD Summary Frame.
- `NCCUPDPPrimaryExpirationTime` – time in seconds by which another NCC UPD must arrive after which a service is flagged as expired.
- `NCCUPDSecondaryExpirationTime` – time in seconds by which another NCC UPD must arrive after which a service is removed from the list of active services in the UPD Summary Frame.

The panel consists of the following items:

- `Time` – time tag from UPD message.
- `SUPIDEN/SIC` – Support Identifier. SIC is displayed instead of SUPIDEN for DAS services.
- `Status` – overall status for the service. This is also a button that, when clicked, opens a UPD Detail panel as described in Section 9.3. The status button is labeled with the maximum severity of UPD detail data as determined by limit checks performed on the data from the UPD detail panel. This button also provides an indication of the status of the incoming data. A listing of possible color-coded status values is given in Table 9-1.
- `Service` – UPD service type. A list of valid types is shown in Table 9-2. With the exception of *DASMAR*, these types are derived from the UPD service types described in detail in Section 8 of the *NCCDS/MOC ICD*. Each type also contains data from the associated header packets. Separate UPD service types are provided for the various Data Group (DG) configurations. Optional Data Quality Monitoring (DQM) data is included with the appropriate return service packet.
- `TDRS` – TDRS name.
- `Link/EventID` – antenna or Link ID for NCC services, Event ID for DAS services.
- `GCMR` – for services for which this is possible, this is a button that causes a Ground Control Message Request (GCMR) menu to be displayed, allowing the user to reconfigure the service. The menu panel varies depending on whether the selected service is an NCC or a DAS MAR service. GCMRs may also be initiated through the Active Schedule Event Service Display. GCMRs are described in detail in Section 10.

**Table 9-1. UPD Service Status Values**

<b>Color</b>	<b>Label</b>	<b>Explanation</b>
Green	Good	UPDs are active. No limit-checked parameter failed.
Yellow	Warning	UPDs are active. At least one limit-checked parameter is at the warning level. No limit-checked parameters are worse than the warning level.
Red	Out of Tolerance	UPDs are active. At least one limit-checked parameter is out of tolerance.
Red	Invalid Data	An invalid value was received for at least one parameter. This usually indicates an NCCDS or SWSI software error. DSMC operations or SWSI development support should be notified.
White with Green Striped Border	One Chnl Bad	UPDs are active. The parameters for one return channel (I or Q) passed validation while the other channel failed.
Gray	UPDs Ended	UPDs are not active. Timeout expired without updates for this service.
White with Red Striped Border	Stale Data	Stale data was received from NCCDS. The data is a repeat of data received in a previous UPD.

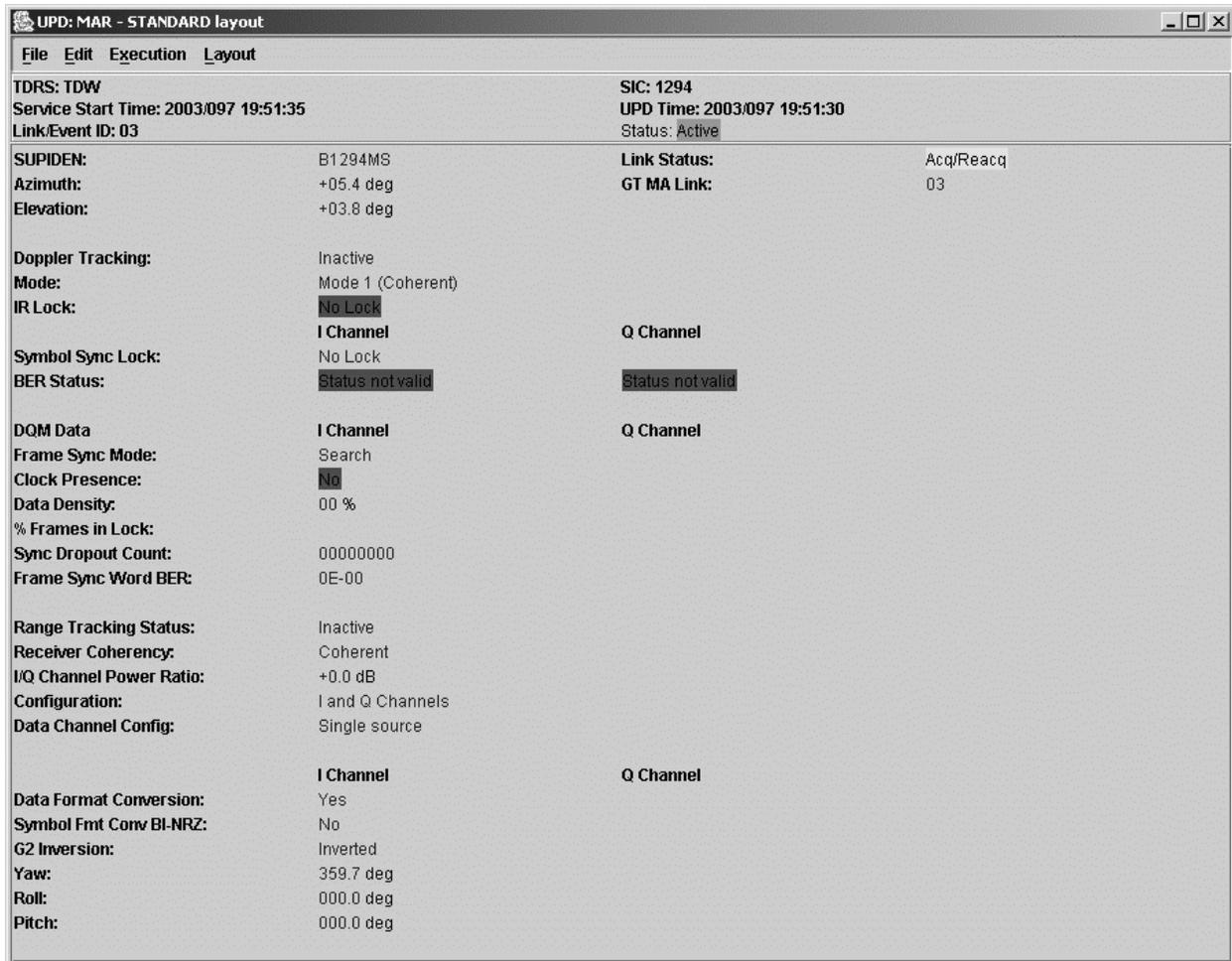
**Table 9-2. UPD Service Types**

<b>UPD Type</b>	<b>Associated Service Type</b>
MAF	MAF
SMAF	SMAF
SSAF	SSAF
KSAF	KSAF
KaSAF	KASAF
MAR	MAR
SMAR DG1	SMAR
SMAR DG2	SMAR
SSAR DG1	SSAR
SSAR DG2	SSAR
KSAR DG1	KSAR
KSAR DG2	KSAR
KaSAR DG2	KASAR
KaSARWB DG2	KASARWB
EETF	EETF
EETR	EETR
DASMAR	DASMAR

## 9.3 UPD Details

### 9.3.1 General

The UPD Detail Panel is used to display the values of all UPD parameters for a given service. A separate panel is created for each UPD stream. The panels are displayed by clicking the associated service button on the UPD Summary Panel. A sample panel is shown in Figure 9-2.



**Figure 9-2. UPD Detail Panel**

The UPD Detail Panel consists of a title, menu bar, header panel, and body panel. The title gives the UPD service name and the current layout name. The header panel provides additional information about the service, including TDRS ID, SIC, service start time (timetag from first UPD received), time tag from the latest UPD received, antenna or link number/Event ID, and the current UPD status in color (green Active or red Ended).

The body panel at the bottom shows the values for each parameter. Parameter value limit checking is supported, with values displayed according to color codes described in Table 9-3. Validation results are also used in determining the service status in the UPD Summary Panel as described in Table 9-1.

The UPD Detail Panel supports customization of panel layout. On initial Client installation, all detail panels are displayed using a standard layout as indicated in the panel title. This layout describes a default layout describing which parameters are displayed and what limit checking is performed. Editing of the panel layouts is outside the scope of this document. The standard layouts are described in Appendix D. The following subsections describing menu options for the detail panel excludes those options having to do with layout editing and selection.

**Table 9-3. UPD Detail Item Coding**

<b>Data Color</b>	<b>Description</b>
Black	Label (static)
Blue	Non-limit checked parameter value
Green	Limit-checked parameter value, data in good range
Yellow	Limit-checked parameter value, data in marginal range
Red	Limit-checked parameter value, data is out of tolerance or invalid

### **9.3.2 Window Print Menu Option**

The Window Print menu option from the File menu is used to print a screen image of the detail panel.

### **9.3.3 Window Snapshot Menu Option**

The Window Snapshot menu option from the File menu is used to save an image showing the current window contents to a JPEG file.

### **9.3.4 Close Menu Option**

The Close menu option from the File menu closes the current window.

### **9.3.5 Pause Menu Option**

The Pause menu option from the Execution menu is used to temporarily halt data updates to the detail panel. When Pause mode is selected, a check mark appears to the left of the Pause option in the Execution menu. Selecting the Pause option, resumes data updates. In Pause mode, summary status is not computed and the status shown in the UPD Summary Panel is not updated.

### 9.3.6 Update Menu Option

The Update menu option from the Execution menu is used to display the most current data while in Pause mode. However, the corresponding summary status in the UPD Summary Panel is not updated. The panel remains in Pause mode after selection of the Update option.

## 9.4 UPD Logging

The UPD logging menu option from the Control/Monitor menu controls whether or not UPD data received from NCCDS and DAS is logged to a file on the Client workstation. The following properties control UPD logging behavior:

- UPDLogging – defines whether UPD message logging is enabled at Client startup.
- UPDLogDir – directory where UPD messages received from NCCDS or DAS are written to.
- UPDArchiveDir – directory to which archived (old) UPD messages are moved.
- UPDMaxLogSize – maximum UPD log file size in bytes. When the UPD log file reaches this size, the current UPD log file is closed and a new UPD log file is started.

UPD log files are of the form:

SIC\_<SIC>\_at\_YYYY\_DDD\_HHMMSS.upd

Where:

- SIC = Support Identification code.
- YYYY\_DDD\_HHMMSS = timetag from first UPD in file.

Separate files are created for each SIC for which the user is authorized and selected to be active for this session. UPDs for all services associated with a given SIC are stored in the same file. File rollover occurs either when the *UPDMaxLogSize* is reached or when any one of the UPD streams being stored ends as defined by *UPDSecondaryExpirationTime* and disappears from the UPD Summary Panel.

The format of the UPD log file is described in detail in Appendix E.

## 9.5 Return Channel Time Delay Message

NCCDS Return Channel Time Delay (RCTD) Measurement messages are automatically stored in a file on the client workstation when they are received. The location of the file is defined by the *rctdOutputPath* property. RCTD files are of the form:

<MODE>\_<SIC>\_YYYY\_DDD\_HHMMSS.rctd

Where:

- MODE = OPS or EIF
- SIC = Support Identification code.
- YYYY\_DDD\_HHMMSS = time that message was received.

At time of receipt, a green Information alert similar to the following is also displayed:

RCTDM Received, SUPIDEN B1294EE, TDE SSAR1

The message is stored in binary in the same format as described in Table 8-16 of the *NCCDS/MOC ICD*.

## 9.6 Time Transfer Message

NCCDS Time Transfer Messages (TTMs) are automatically stored in a file on the client workstation when they are received. The location of the file is defined by the *ttmOutputPath* property. TTM files are of the form:

<MODE>\_<SIC>\_YYYY\_DDD\_HHMMSS.ttm

Where:

- MODE = OPS or EIF
- SIC = Support Identification code.
- YYYY\_DDD\_HHMMSS = time that message was received.

At time of receipt, a green Information alert similar to the following is also displayed:

TTM Received, SUPIDEN B1294EE, TDE SSAR1

The message is stored in binary in the same format as described in Table 8-18 of the *NCCDS/MOC ICD*.

## 9.7 Acquisition Failure Notification

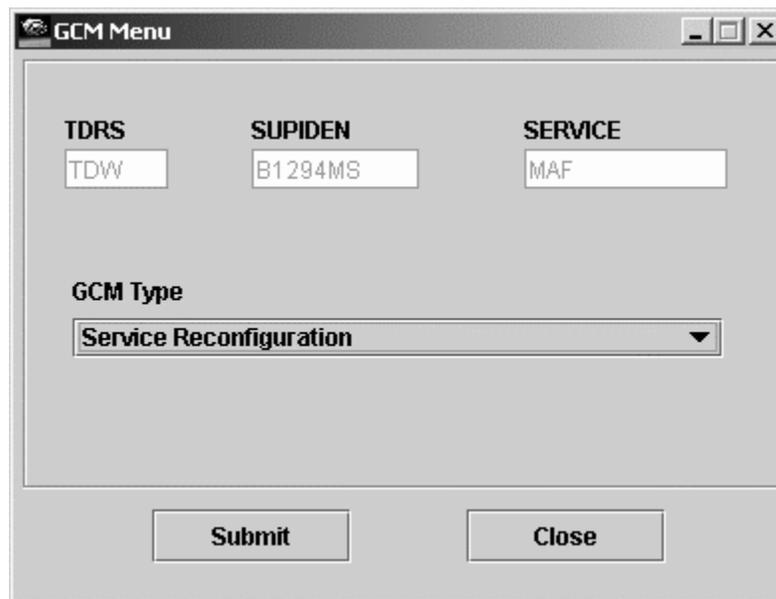
Acquisition Failure Notification (AFN) messages received from the NCCDS result in a yellow Warning alert being displayed, similar to the following:

Acquisition Failure, SUPIDEN D8603WD, 275 SSAR1

## Section 10. Service Reconfiguration

---

The panel shown in Figure 10-1 is the Ground Control Message Request (GCMR) menu panel for reconfiguring ongoing NCCDS services. This panel is displayed either through the Event Service Display described in Section 8.7.2 or through the UPD Summary Panel described in Section 9.2.



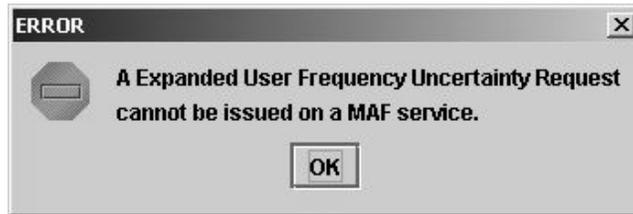
The image shows a software window titled "GCM Menu". It contains three input fields at the top: "TDRS" with the value "TDW", "SUPIDEN" with the value "B1294MS", and "SERVICE" with the value "MAF". Below these is a "GCM Type" dropdown menu currently set to "Service Reconfiguration". At the bottom of the window are two buttons: "Submit" and "Close".

**Figure 10-1. GCM Menu Panel**

The following selections are provided in the GCM Type menu:

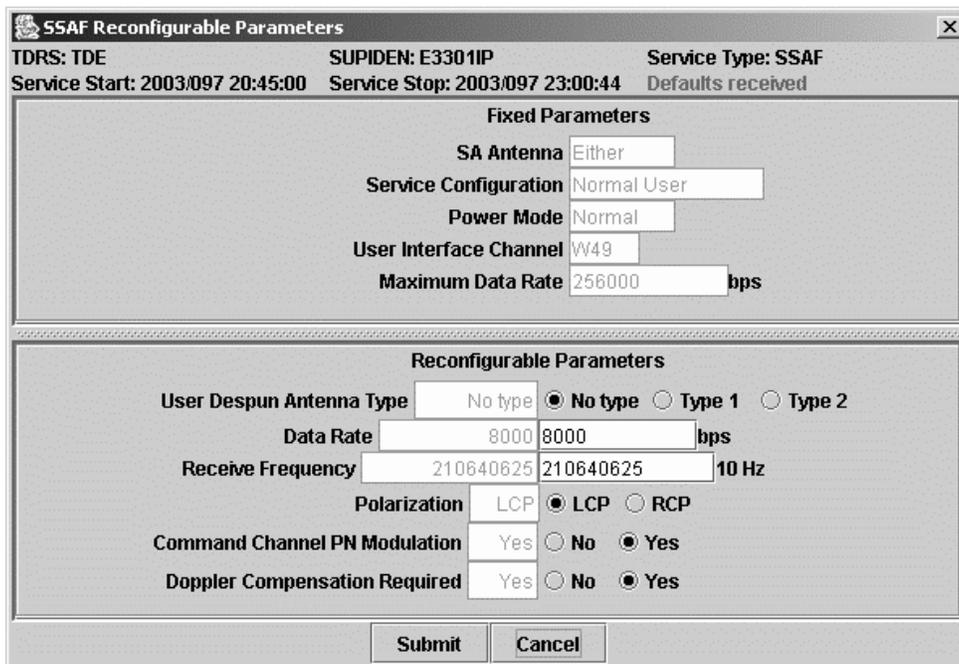
- Service Reconfiguration
- User Reacquisition Request
- Forward Link Sweep Request
- Forward Link EIRP Reconfiguration – Normal Power
- Forward Link EIRP Reconfiguration – High Power
- Expanded User Frequency Uncertainty Request
- Doppler Compensation Inhibit Request

With the exception of the Service Reconfiguration, selecting any one of these possible options and clicking *Submit* causes the request to immediately be sent to the SWSI server. In cases where a GCMR is submitted which is not appropriate for a given service, an error alert dialog box similar to that shown in Figure 10-2 is displayed.



**Figure 10-2. Invalid GCMR Error Dialog**

Selection of Service Reconfiguration Request causes a Reconfigurable Parameters Panel similar to that shown in Figure 10-3 to appear. This panel is similar to the Service Parameter Panel discussed in Section 8, except that it displays the current reconfigurable parameter values for that ongoing service. The values in the left column reflect the initial values assigned when the service was scheduled, plus any changes that have occurred with subsequent reconfigurations. Changes are made by editing the values in the right column. Clicking the *Submit* button causes the message dialog in Figure 10-4 to appear and for the request to be sent to the SWSI server.



**Figure 10-3. Reconfigurable Parameters Panel**



**Figure 10-4. GCMR Message Sent Dialog**

Once any GCMR is sent to the server, a unique Request ID is assigned and the message is formatted for transmission to the NCCDS. Alerts are generated by the server for each step in the message exchange that results in the request either being accepted or rejected. The Alert Message Panel may be used to monitor the progress of this exchange.

Following is a typical sequence of events for a successfully submitted GCMR:

1. The GCMR is transmitted to the NCC.
2. The NCC responds with a GCM Disposition message indicating whether or not the message was successfully acknowledged by the White Sands Complex (WSC).
3. The NCC responds with a GCM Status message indicating whether the GCMR was accepted or rejected. If rejected, a reason for rejection is given as defined by the reject codes in Table 8-13 of the *NCCDS/MOC ICD*.

Following is a typical set of alerts for the case where a GCMR is successfully processed:

```
Reacq Req ID #0003581, SUPIDEN D8603WD, 171 SSAF1 transmitted to ANCC  
GCM Disposition received for Reacq Req ID #3581, SUPIDEN D8603WD, ACK'd at 02/303 19:34:42  
GCM Status received for Reacq Req ID #3581, SUPIDEN D8603WD: Accepted
```

In this case, since the request was successful, all the alerts are of green (Information) severity. Following is a case where a request is rejected:

```
Fwd Link EIRP Reconfig Req ID #0104220, SUPIDEN B1294EE, TDE MAF transmitted to ANCC  
GCM Status received for Fwd Link EIRP Reconfig Req ID #104220, SUPIDEN B1294EE: Rejected (28), GCM class  
inappropriate to service type or configuration
```

The GCM Status alert is of yellow (Warning) severity to indicate that there was a problem with the request such that it was rejected. Note also that since the GCMR was rejected prior to transmission to WSC, no GCM Disposition message was received. For GCMRs rejected by WSC, a GCM Disposition alert will be displayed.

Listed in Table 10-1 are alerts indicating that a problem occurred in transmitting a GCMR outside of a normal rejection by NCCDS.

**Table 10-1. GCMR Error Alerts**

Error Alert Message	Severity	Explanation
Error transmitting <GCMR_Type> ID #xxxxxxx, SUPIDEN xxxxxxx, <TDRS> <Service> to NCC, dropping message	Red	There was an error in transmitting the message to NCCDS. The message is being dropped and will need to be resubmitted.
Unable to connect to NCC, dropping <GCMR_Type> ID #xxxxxxx, SUPIDEN xxxxxxx, <TDRS> <Service>	Red	There was a problem connecting to the NCCDS. The message is being dropped and will need to be resubmitted. DSMC operations personnel should be notified of the error, as it indicates either an operations or a database problem.
GCMR ID #xxxxxxx invalid: Realtime Connection entry not found	Red	The SWSI database has not been properly configured for the SIC. The message is dropped. The SWSI DBA at DSMC should be contacted to correct the error.
GCMR ID #xxxxxxx invalid: <reason for invalid request>	Red	The GCMR is not properly formatted and will be dropped. This error should not occur and is an indication of a SWSI software error. SWSI development support should be notified.

# Section 11. State Vectors

---

## 11.1 Introduction

This section contains a detailed description of how to use the SWSI Client application to send state vectors to the NCCDS and DAS. It is not meant to be a comprehensive guide on how the Space Network processes state vectors. For more detailed information, refer to the *SN Users' Guide (SNUG)*, the *NCCDS Operations Concept Document*, the *NCCDS/MOC ICD*, the *DAS/SWSI ICD*, the *NCC-FDF/WSC ICD*, and the *DAS Operations Concept Document*.

## 11.2 Generating State Vectors

### 11.2.1 General

The Geocentric State Vector, Geodetic State Vector, and State Vector Manual Import panels allow the user to generate an IIRV Message for submission to the NCC or a State Vector Update message to DAS. There is also a State Vector File Automatic Import feature for submitting state vectors through a local directory on the client host.

State Vectors contain the spacecraft position and velocity for a given epoch. In addition, they contain a SIC, vector destination, and vector type. The Client only generates stationary (fixed) and orbiting (free flight) state vectors. Maneuver sequence vectors are not supported.

### 11.2.2 Geocentric State Vector Panel

The Geocentric State Vector Generation Panel allows the user to submit a state vector using Cartesian (XYZ) position and velocity components for an object that is stationary or orbiting. The panel is shown in Figure 11-1. The position and velocity components should be referenced to the Greenwich True-of-Date Rotating Coordinate System (see the NCC-FDF/WSC ICD for details).

The Geocentric State Vector Generation Panel consists of the following items:

- Epoch – an instant in time used as a point of reference.
- SIC – Support Identification Code.
- Vector Destination – destined for NCC, DAS, or Both.
- Vector Type – stationary (fixed) or orbiting (free flight).
- Position – X, Y, Z position coordinates expressed in meters.
- Velocity –  $V_x$ ,  $V_y$ ,  $V_z$  velocity coordinates expressed in meters/second.

**Figure 11-1. Geocentric State Vector Generation Panel**

When the panel is opened, the Epoch is initially set to the current UTC. The user must first select a destination (NCC, DAS, or Both), then select from a list of SICs that are appropriate for that destination. If DAS is selected for a Stationary vector, then the Epoch field is cleared and disabled. In this case, the SWSI server sets the Epoch to ensure that it is in the past. For Stationary vectors sent to Both, the Epoch field remains enabled. However, the Epoch entry is ignored for the state vector sent to DAS and is instead set by the server in the same manner as if it were destined only for DAS.

At a minimum, the XYZ position fields must be filled in prior to submitting the state vector. The velocity component fields are optional fields and may be left blank. The position and velocity fields are numeric floating-point fields, which may contain only numeric digits and an optional minus sign. Position fields are limited to twelve digits. Velocity fields are limited to nine whole number digits and eighteen decimal digits. Regardless of the field length limits, the position and velocity fields are truncated to the proper length prior to transmission to NCC or DAS.

The *Clear* button clears all entries in the panel. Pressing *Cancel* will close the panel without submitting a state vector. The *Submit* button is used to submit the request to the server, where a unique Message ID is assigned and the message is formatted for transmission to the NCC or DAS. For state vectors transmitted to the NCC, if the transmission is successful, then an alert similar to the following is received:

Type 8 IIRV ID #0070577, Epoch 094 21:32:00.000 transmitted to NCC

Table A-5 lists all the possible alerts for state vectors sent to the NCC, including alerts due to error conditions.

### 11.2.3 Geodetic State Vector Panel

The Geodetic State Vector Generation Panel allows the user to submit a stationary state vector using geodetic coordinates (latitude, longitude, altitude). The panel is shown in Figure 11-2. The Client converts the geodetic coordinates to Cartesian position components and zero velocity components based upon the World Geodetic System (WGS) 1984 (WGS-84) Reference System.

The Geodetic State Vector Generation Panel consists of the following items:

- Epoch – an instant in time used as a point of reference.
- SIC – Support Identification Code.
- Vector Destination – destined for NCC, DAS, or Both.
- Altitude – height expressed in meters.
- Latitude – angle between the vertical at the location and the plane of the equator expressed in degrees from  $-90$  to  $+90$ .
- Longitude West – angle between the prime meridian and the meridian of the location, taken positively towards the west expressed in degrees from  $0$  to  $360$ .

When the panel is opened, the Epoch is initially set to the current UTC. The user must first select a destination (NCC, DAS, or Both), then select from a list of SICs that are appropriate for that destination. If DAS is selected, then the Epoch field is cleared and disabled. In this case the SWSI server sets the Epoch to ensure that it is in the past. For state vectors sent to Both, the Epoch field remains enabled. However, the Epoch entry is ignored for the state vector sent to DAS and is instead set by the server in the same manner as if it were destined only for DAS.

Altitude, Latitude, and Longitude West are numeric fields, which may contain only numeric floating point digits and an optional minus sign.

The *Clear* button clears all entries in the panel. Pressing *Cancel* will close the panel without submitting a state vector. The *Submit* button is used to submit the request to the server, where a unique Message ID is assigned and the message is formatted for transmission to the NCC or DAS. For state vectors transmitted to the NCC, if the transmission is successful, then an alert similar to the following is received:

Type 8 IIRV ID #0070577, Epoch 094 21:32:00.000 transmitted to NCC

Table A-5 lists all the possible alerts for state vectors sent to the NCC, including alerts due to error conditions.

Geodetic State Vector Generation

Geodetic Reference System WGS-84  
Re = 6,378,137 m, IFC = 298.2572

Epoch 2003 094 19 46 00 ↑ ↓

SIC 6951

NCC  
 DAS  
 Both

FOR STATIONARY (TYPE-8) ONLY

Altitude: (m)

Latitude: [+/- 90]

Longitude West: [0 - 360]

Submit Clear Cancel

**Figure 11-2. Geodetic State Vector Generation Panel**

## 11.3 Importing State Vectors

### 11.3.1 General

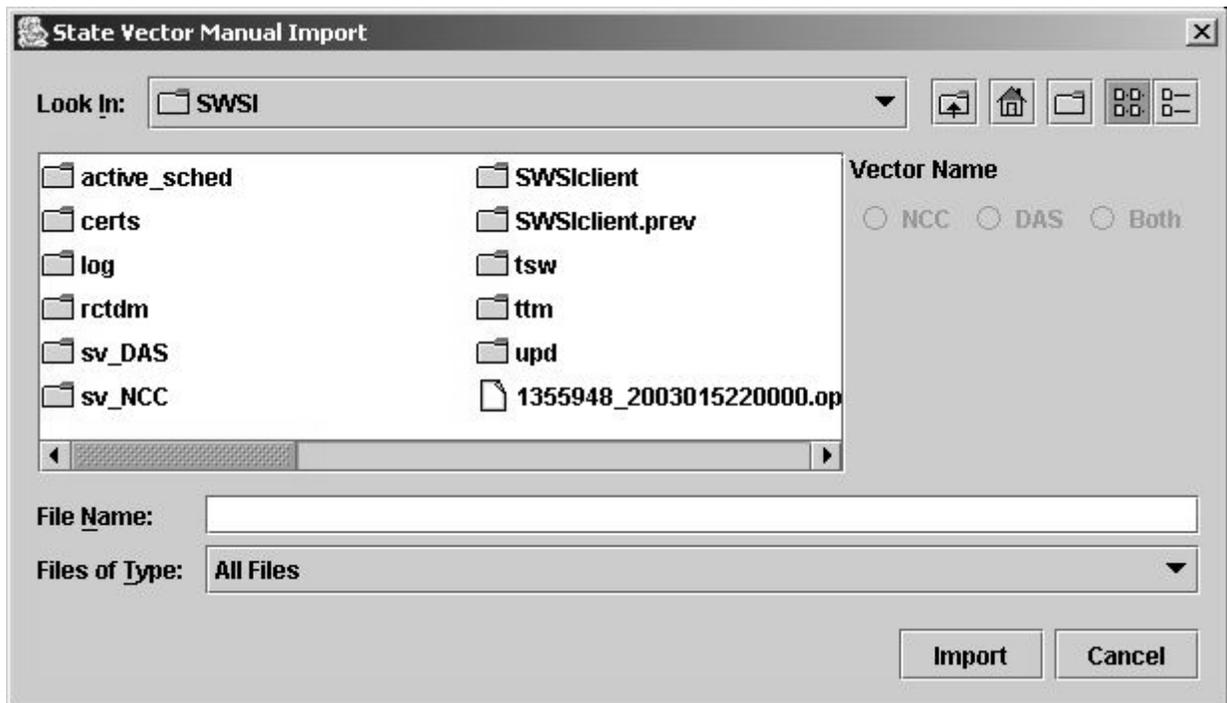
The Client allows the user to import state vector files and transmit them to the NCC and/or DAS. There are two methods of importing: manual and automatic. Each method is described in the following subsections. The state vector files must conform to the IIRV message format defined in Table 9.2 of the *NCCDS/MOC ICD*. There are some fields that are overwritten by SWSI when the vector is transmitted to the NCCDS. While these fields are overwritten, the customer is still required to populate the fields with the proper ranges of values for successful import. Table 11-1 describes those fields in particular.

**Table 11-1. NCCDS IIRV Overwritten Fields**

Field	NCCDS/MOC ICD, Table 9-2 Item	Default Value
Message Type	1	03
Message ID	2	SWSI-generated unique number
Message Source	3	0
Message Class	4	10
Message Start	5	GIIRV
Originator ID	6	<space>
Routing Indicator	7	<4 spaces>
Data Source	13	1
Transfer Type	14	1
Coordinate System	15	1
Vehicle Identification Code	17	01
Sequence Number	18	001
Mass	48	00000000
Cross-sectional Area	49	00000
Drag	50	0000
Sign Character	51	<space>
Coefficient of Solar Reflectivity	52	<space>0000000
End of Message	58	ITERM
Spare	59	<space>
Originating Routing Indicator	60	GCQU

### 11.3.2 State Vector File Manual Import Panel

The State Vector File Manual Import Panel allows the user to select a state vector file to be transmitted to NCC and/or DAS. The panel is shown in Figure 11-3. The panel is a file chooser dialog, which allows the user to navigate their file system to find a state vector file to be imported. On the panel, the state vector's destination must be selected using one of the radio buttons: NCC, DAS, or Both. For stationary (Type-8) state vectors destined for DAS, the Epoch is set by the SWSI server to ensure that the Epoch is in the past. For stationary (Type-8) state vectors destined for Both (NCC and DAS), the state vector that is sent to DAS will still have its Epoch set by the SWSI server. For orbiting (Type-1) state vectors destined for the DAS, the Epoch is submitted exactly as entered by the user. For all state vectors destined for the NCC, the Epoch is submitted exactly as entered by the user.



**Figure 11-3. State Vector File Manual Import Panel**

### 11.3.3 State Vector File Automatic Import Feature

The Client allows state vector files to be placed into a vector queue directory on the user's workstation. This queue directory should contain the user's vectors that they wish to be sent to the NCCDS and/or DAS. The queue directory is periodically polled to have the Client import and send the vectors to the NCCDS and/or DAS. The following properties control state vector automatic import behavior:

- VectorQueuePollTime – time (in minutes) delay between searches for state vector files.
- VectorQueueNCC – directory that is searched for user-created NCC state vector files.
- VectorQueueDAS – directory that is searched for user-created DAS state vector files.
- VectorArchiveNCC – directory to which old NCC state vector files are moved after transmission.
- VectorArchiveDAS – directory to which old DAS state vector files are moved after transmission.

All the fields in the state vector file are verified prior to transmission. An alert is generated to notify the user of validation errors. Once transmitted, files are moved to an archive directory. If an error is found in a state vector file, the file is moved to the archive directory with an extension of ".error". Table 11-2 lists the alert messages received due to an invalid state vector.

**Table 11-2. Invalid State Vector Alerts**

Error Alert Message	Explanation
IIRV File xxxx Invalid: Vector #xxx : <IIRV Field Name> Field	The field in error does not conform to the NCCDS/MOC ICD for state vector messages.
IIRV File xxxx Invalid: <IIRV Field Name> Field	The field in error does not conform to the NCCDS/MOC ICD for state vector messages.
IIRV File xxxx Invalid: File Size	The file size is either less than the minimum size or greater than the maximum size.
IIRV File xxxx Invalid: Unsupported SIC(s) found	The SIC found in this file is not supported for NCC or DAS.
IIRV File xxxx Invalid: Epoch Field Not Set	This error should never occur. It is an indication of an internal Client error. The epoch for the vector could not be set.

## Section 12. SSC Administration

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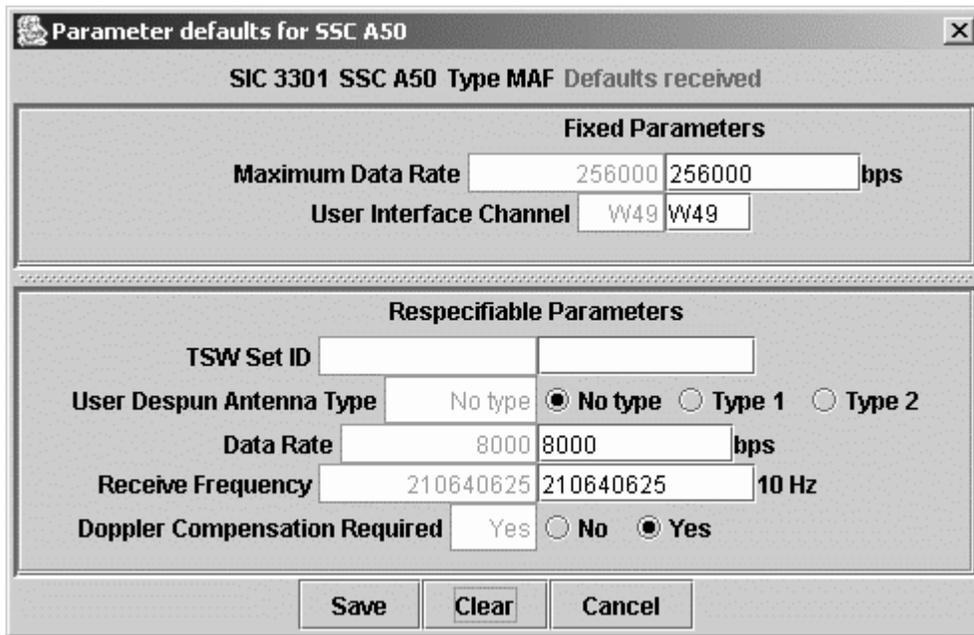
Users with mission manager privilege may edit the default SSC parameter values that are displayed in a schedule request (SAR, ASAR, RR, RAR, or RAMR) respecifiable parameters panel. For NCC requests, these values are used only for reference when respecifying parameters and don't necessarily need to be accurate, especially if no requests will be submitted with these values respecified. If NCC requests will be submitted with respecified parameters, then it is important that the default values in the SWSI database match those in the NCCDS database. Changes should therefore always be coordinated with the NCCDS DBA.

For DAS requests, the default values represent the actual values sent in a RAR or RAMR and must be accurate. Coordination with the DAS DBA is not required.

The process of adding or removing SSCs is strictly a SWSI DBA function that cannot be performed by a SWSI user. After the SWSI DBA adds a new code in coordination with the customer, a user with appropriate privilege may then edit the default parameter values. Note that new codes will not appear to the user until the first login session after the new code is added. SSC editing is initiated by selecting the Edit SSCs option in the Admin menu. This causes the menu panel shown in Figure 12-1 to appear. NCC or DAS must be selected first, then the SIC, after which the SSC may be selected from the list of SSCs for that SIC. Clicking the *Edit* button causes an Edit SSC Parameters Panel similar to that shown in Figure 12-2 to appear.



**Figure 12-1. Edit SSCs Menu Panel**



**Figure 12-2. Edit SSCs Parameters Panel**

This panel is similar to the Service Parameter Panel discussed in Section 8, except that values for all parameters, including fixed, may be edited. The values in the left column reflect the current default values stored in the database. For newly adding SSCs, these values are all blank. Changes are made by editing the values in the right column. Clicking the *Save* button causes the modification request to be sent to the SWSI server.

If an error should occur in saving the new values, a yellow (Warning) alert similar to the following is displayed:

Error editing SSC B02 for SIC 1294, change not saved

This indicates a database or software problem on the SWSI server that should be resolved through the SWSI DBA.

## Appendix A. Alert Messages

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This appendix lists all the possible messages that can be displayed in the Alert Message panel. The messages are listed in Tables A-1 through Table A-7 for each possible source of the alert. Because of the number of SWSI-NCCDS Interface alerts, these alerts are further categorized by general message type (scheduling, GCMR, etc).

### A-1. Client Alert Messages (1 of 2)

Alert Message	Severity	Explanation
The following socket error occurred: <java_exception_text>	Yellow	An error occurred with the TCP connection with the server.
Automatic reconnect to server was successful.	Green	Reconnection to server after a connection loss was successful.
Automatic reconnect to server failed.	Yellow	Reconnection to server after a connection loss failed.
Type <IIRV Type 1 or 8> IIRV File xxxx Imported Successfully	Green	The Type 1 or 8 state vector file was successfully imported.
Type <IIRV Type 1 or 8> IIRV #xxx, Epoch DDD HH:MM:SS:ssss Imported Successfully	Green	For a state vector file that contains multiple vectors, each vector given by #xxx within the file was successfully imported.
Directory Does Not Exist! <directory name>	Yellow	The state vector queue directory does not exist. Therefore, the state vector file(s) cannot be imported.
Directory Could Not Be Created. <directory name>	Yellow	The Client will try to create the archive directory if it does not exist. In this case, the Client was unable to create the directory. Therefore, the state vector file(s) cannot be archived.
State Vector Properties Not Loaded. Using default values.	Yellow	The Client could not load the state vector properties from the property file. When this occurs, default values are used for poll time, queue directory and archive directory.
Vector Import Process Halted! Error found while sleeping: See console for details	Red	This error should never occur. It is an indication of an internal Client error that has prevented the import process from running. SWSI development support should be notified.
Vector Import Process Halted! Error found in main thread: See console for details	Red	This error should never occur. It is an indication of an internal Client error that has prevented the import process from running. SWSI development support should be notified.
IIRV File xxxx Invalid: Vector #xxx : <IIRV Field Name> Field	Red	The field in error does not conform to the NCCDS/MOC ICD for state vector messages.
IIRV File xxxx Invalid: <IIRV Field Name> Field	Red	The field in error does not conform to the NCCDS/MOC ICD for state vector messages.
IIRV File xxxx Invalid: File Size	Red	The file size is either less than the minimum size or greater than the maximum size.

### A-1. Client Alert Messages (2 of 2)

Alert Message	Severity	Explanation
IIRV File xxxx Invalid: Unsupported SIC(s) found	Red	The SIC found in this file is not supported for NCC or DAS.
IIRV File xxxx Invalid: Epoch Field Not Set	Red	This error should never occur. It is an indication of an internal Client error. The epoch for the vector could not be set.
TSW File xxxx, SUPIDEN xxxxxxx, TDRS xxxx, Set ID xxxxxxx " Imported Successfully"	Green	TSW file was successfully imported.
Directory Does Not Exist! <directory name>	Yellow	The TSW queue directory does not exist. Therefore, the TSW file(s) cannot be imported.
Directory Could Not Be Created. <directory name>	Yellow	The Client will try to create the archive directory if it does not exist. In this case, the Client was unable to create the directory. Therefore, the TSW file(s) cannot be archived.
TSW Properties Not Loaded. Using default values.	Yellow	The Client could not load the TSW properties from the property file. When this occurs, default values are used for poll time, queue directory and archive directory.
TSW Import Process Halted! Error found while sleeping: See console for details	Red	This error should never occur. It is an indication of an internal Client error that has prevented the import process from running. SWSI development support should be notified.
TSW Import Process Halted! Error found in main thread: See console for details	Red	This error should never occur. It is an indication of an internal Client error that has prevented the import process from running. SWSI development support should be notified.
TSW File xxxx Invalid: <TSW Field Name> Field	Red	The field in error does not conform to the NCCDS/MOC ICD for TSW messages.
TSW File xxxx Invalid: Unsupported SIC found	Red	The SIC found in this file is not supported for NCC.
TSW File xxxx Invalid: File Size	Red	The file size is either less than the minimum size or greater than the maximum size.

### Table A-2. Isolator Alert Messages

Alert Message	Severity	Explanation
Error editing SSC xxx for SIC xxxx, change not saved	Yellow	A server error occurred while trying to save parameter values for an SSC being edited. The SWSI DBA should be contacted.
Error editing SSC xxx for SIC xxxx, unlock failed	Yellow	A server error occurred while trying to save parameter values for an SSC being edited. The SWSI DBA or DSMC operations should be contacted.
Event #xxxxxxx, SUPIDEN xxxxxxx, <TDRS> starts at YYYY/DDD HH:MM:SS	Green	An event is scheduled to begin within the next 5 minutes.
Event #xxxxxxx, SUPIDEN xxxxxxx, <TDRS> ends at YYYY/DDD HH:MM:SS	Green	An event is scheduled to begin within the next 5 minutes.

**Table A-3. SNIF Scheduling Alert Messages**

<b>Alert Message</b>	<b>Severity</b>	<b>Explanation</b>
SAR ID #xxxxxxx, SUPIDEN xxxxxxx transmitted to NCC	Green	SAR successfully transmitted to NCC.
ASAR ID #xxxxxxx, Ref #xxxxxxx, SUPIDEN xxxxxxx transmitted to NCC	Green	ASAR, SDR, RR, or WLR successfully transmitted to NCC.
Error transmitting SAR ID #xxxxxxx, SUPIDEN xxxxxxx to NCC, will retry later	Yellow	There was an error in transmitting the SAR to NCCDS. The message is saved and transmission will be attempted later. Another alert will be displayed when transmission is successful.
Error transmitting ASAR ID #xxxxxxx, Ref #xxxxxxx, SUPIDEN xxxxxxx to NCC, will retry later	Yellow	There was an error in transmitting the ASAR, SDR, RR, or WLR to NCCDS. The message is saved and transmission will be attempted later. Another alert will be displayed when transmission is successful.
Unable to connect to NCC, will attempt later to send SAR ID #xxxxxxx, SUPIDEN xxxxxxx	Yellow	There was a problem connecting to the NCCDS. The SAR is saved and transmission will be attempted later. Another alert will be displayed when transmission is successful.
Unable to connect to NCC, will attempt later to send ASAR ID #xxxxxxx, Ref #xxxxxxx, SUPIDEN xxxxxxx	Yellow	There was a problem connecting to the NCCDS. The ASAR, SDR, RR, or WLR is saved and transmission will be attempted later. Another alert will be displayed when transmission is successful.
Schedule Request ID #xxxxxxx invalid: Unable to find Schedule Connection entry for SIC	Red	The SWSI database has not been properly configured for the SIC. The message is dropped. The SWSI DBA at DSMC should be contacted to correct the error.
Schedule Request ID #xxxxxxx invalid: <reason for invalid request>	Red	The Schedule Request is not properly formatted and will be dropped. This error should not occur and is an indication of a SWSI software error. SWSI development support should be notified.
SRM received for SAR ID #xxxxxxx, SUPIDEN xxxxxxx: <result explanation>	Green Yellow	Schedule Result Message (SRM) received from NCCDS. Severity depends on whether granted, rejected, declined, etc.
<USM_Type> received for Event ID #xxxxxxx, SUPIDEN xxxxxxx, <TDRS>, Start Time YY/DDD HH:MM:SS	Green	User Schedule Message (USM) received from NCCDS for event successfully scheduled.
Error processing USM ID #xxxxxxx: <explanation of error>	Red	A USM received from NCCDS was improperly formatted, or for some other reason could not be stored in the SWSI Active Schedule. The SWSI DBA or DSMC operations should be contacted.
Error processing SRM ID #xxxxxxx: <explanation of error>	Red	An SRM received from NCCDS was improperly formatted. DSMC operations should be contacted.
Error processing Schedule Result ID #xxxxxxx: <explanation of error>	Red	A schedule result received from NCCDS was improperly formatted. DSMC operations should be contacted.

**Table A-4. SNIF GCMR Alert Messages**

Alert Message	Severity	Explanation
<GCMR_Type> ID #xxxxxxx, SUPIDEN xxxxxxx, <TDRS> <Service> transmitted to NCC	Green	GCMR successfully transmitted to NCC.
Error transmitting <GCMR_Type> ID #xxxxxxx, SUPIDEN xxxxxxx, <TDRS> <Service> to NCC, dropping message	Red	There was an error in transmitting the GCMR to NCCDS. The message is being dropped and will need to be resubmitted.
Unable to connect to NCC, dropping <GCMR_Type> ID #xxxxxxx, SUPIDEN xxxxxxx, <TDRS> <Service>	Red	There was a problem connecting to the NCCDS. The GCMR is being dropped and will need to be resubmitted. DSMC operations personnel should be notified of the error, as it indicates either an operations or a database problem.
GCMR ID #xxxxxxx invalid: Realtime Connection entry not found	Red	The SWSI database has not been properly configured for the SIC. The message is dropped. The SWSI DBA at DSMC should be contacted to correct the error.
GCMR ID #xxxxxxx invalid: <reason for invalid request>	Red	The GCMR is not properly formatted and will be dropped. This error should not occur and is an indication of a SWSI software error. SWSI development support should be notified.
GCM Disposition received for <GCMR_Type> ID #xxxxxxx, SUPIDEN xxxxxxx, ACK'd at YY/DDD HH:MM:SS	Green	GCM disposition message received from NCCDS, indicating that GCMR was acknowledged by WSC.
GCM Disposition received for <GCMR_Type> ID #xxxxxxx, SUPIDEN xxxxxxx, No ACK received.	Yellow	GCM disposition message received from NCCDS, indicating that GCMR was not acknowledged by WSC.
GCM Status received for <GCMR_Type> # xxxxxxx, SUPIDEN xxxxxxx: Accepted	Green	GCM status message received from NCCDS indicating GCMR was accepted
GCM Status received for <GCMR_Type> # xxxxxxx, SUPIDEN xxxxxxx: Rejected (<reject code>), <reason for rejection>	Yellow	GCM status message received from NCCDS indicating GCMR was rejected.
GCM Status received for <GCMR_Type> # xxxxxxx, SUPIDEN xxxxxxx: Invalid <parameter name> Value of <parameter value>	Yellow	GCM status message received from NCCDS indicating GCMR was rejected because of a invalid service parameter value.
Error processing GCM ID #xxxxxxx: <explanation of error>	Red	A GCM message received from NCCDS was improperly formatted. DSMC operations should be contacted.

**Table A-5. SNIF State Vector Alert Messages**

Alert Message	Severity	Explanation
Type x IIRV ID #xxxxxxx, Epoch DDD HH:MM:SS.MMM transmitted to NCC	Green	State vector successfully transmitted to NCC.
Error transmitting Type x IIRV ID #xxxxxxx, Epoch DDD HH:MM:SS.MMM to NCC, will retry later	Yellow	There was an error in transmitting the state vector to NCCDS. The message is saved and transmission will be attempted later. Another alert will be displayed when transmission is successful.
Unable to connect to NCC Type x IIRV ID #xxxxxxx, Epoch DDD HH:MM:SS.MMM to NCC, will retry later	Yellow	There was a problem connecting to the NCCDS. The state vector is saved and transmission will be attempted later. Another alert will be displayed when transmission is successful.
IIRV ID #xxxxxxx invalid: Schedule Connection entry not found	Red	The SWSI database has not been properly configured for the SIC. The message is dropped. The SWSI DBA at DSMC should be contacted to correct the error.
IIRV ID #xxxxxxx invalid: <reason for invalid request>	Red	The state vector is not properly formatted and will be dropped. This error should not occur and is an indication of a SWSI software error. SWSI development support should be notified.

**Table A-6. SNIF TSW Alert Messages**

Alert Message	Severity	Explanation
TSW File xxxx, SUPIDEN xxxxxxx, TDRS xxx, Set ID xxxxxxx transmitted to NCC	Green	TSW file successfully transmitted to NCC.
Error transmitting TSW File xxxx, SUPIDEN xxxxxxx, TDRS xxx, Set ID xxxxxxx to NCC, will retry later	Yellow	There was an error in transmitting the TSW file to NCCDS. The message is saved and transmission will be attempted later. Another alert will be displayed when transmission is successful.
Unable to connect to NCC, will attempt later to send TSW File xxxx, SUPIDEN xxxxxxx, TDRS xxx, Set ID xxxxxxx	Yellow	There was a problem connecting to the NCCDS. The TSW file is saved and transmission will be attempted later. Another alert will be displayed when transmission is successful.
TSW File xxxx Invalid: error opening file	Red	This error should not occur and is an indication of a SWSI software error. SWSI development support should be notified.
TSW File xxxx Invalid: file too large (max size 8600 bytes)	Yellow	The maximum allowed size for a TSW file has been exceeded.
TSW File xxxx Invalid: invalid size	Yellow	The file size for a TSW is less than the minimum size. There isn't even enough data for a header (items 1-11).
TSW File xxxx Invalid: invalid message type	Yellow	The TSW Message Type (item 1) should be "99".
TSW File xxxx Invalid: invalid message class	Yellow	The TSW Message Class (item 3) should be "25".
TSW File xxxx Invalid: SIC/SUPIDEN mismatch	Red	This error should not occur and is an indication of a SWSI software error. SWSI development support should be notified.
TSW File xxxx Invalid: invalid Timespan Start	Yellow	The TSW Timespan Start (Item 9) is not a valid format (YYDDHHMMSS).
TSW File xxxx Invalid: invalid Timespan End	Yellow	The TSW Timespan End (Item 10) is not a valid format (YYDDHHMMSS).
TSW File xxxx Invalid: TSW count/message length mismatch	Yellow	The TSW file is not the correct length based on the Number of TSWs (item 11).
TSW File xxxx Invalid: Schedule Connection entry not found	Red	The SWSI database has not been properly configured for the SIC. The TSW message is dropped. The SWSI DBA at DSMC should be contacted to correct the error.

**Table A-7. SNIF Performance Data Alert Messages**

Alert Message	Severity	Explanation
RCTDM Received, SUPIDEN xxxxxxx, <TDRS> <Service>	Green	Return Channel Time Delay Message received from NCCDS.
TTM Received, SUPIDEN xxxxxxx, <TDRS> <Service>	Green	Time Transfer Message received from NCCDS.
Acquisition Failure, SUPIDEN xxxxxxx, <TDRS> <Service>	Yellow	Acquisition Failure Notification message received from NCCDS.
Error processing Performance Data message ID #xxxxxxx: <explanation of error>	Red	A performance data message received from NCCDS was improperly formatted, or the SWSI server experienced an error processing the message. DSMC operations should be contacted.
Error processing UPD ID #xxxxxxx: <explanation of error>	Red	A UPD message received from NCCDS was improperly formatted, or the SWSI server experienced an error processing the message. DSMC operations should be contacted.

# Appendix B. NCC Active Schedule File Format

---

## B.1 General

The general format of the active schedule file for NCC-scheduled events stored automatically on the Client workstation as described in Section 8.8 is as follows:

```
CREATIONTIME="YYYY/DDD HH:MM:SS"  
EVENTCOUNT="n"  
SCHEDULEDEVENT1  
  <Event-level parameters>  
  .  
  .  
SERVICECOUNT="m"  
SERVICE1  
  SERVICETYPE="<service_type>"  
  <Service-level parameters>  
  .  
  .  
PARAMETERCOUNT="p"  
PARAMETERS  
  <Service parameter values>  
  .  
  .  
ENDPARAMETERS  
ENDSERVICE1  
SERVICE2  
  .  
  .  
ENDSERVICE2  
  .  
  .  
SERVICEm  
  .  
  .  
ENDSERVICEm  
ENDSCHEDULEDEVENT1  
SCHEDULEDEVENT2  
  .  
  .  
ENDSCHEDULEDEVENT2  
  .  
  .  
SCHEDULEDEVENTn  
  .  
  .  
ENDSCHEDULEDEVENTn
```

In general, parameter or keyword assignments are of the following format:

<keyword>="<value>"

Where the <value> is always provided within quotes. In cases where a parameter may have no value, such as with the PROTOTYPE\_EVENTID in the sample file in Section B.5, the value is still provided as a null value (e.g., PROTOTYPE\_EVENTID="").

The block definition keywords are defined as follows:

- CREATIONTIME – time that file was created on SWSI server.
- EVENTCOUNT – total number of events in file.
- SCHEDULEDEVENT – start of an event-level information block. Relative event number is used as a suffix.
- ENDSCHEDULEDEVENT – end of an event-level information block.
- SERVICECOUNT – total number of services for an event.
- SERVICE - start of a service-level information block. Service number is used as a suffix.
- ENDSERVICE - end of a service-level information block.
- PARAMETERCOUNT – total number of service parameters. Included only if configured to receive parameter values.
- PARAMETERS – start of a parameter value block. Included only if configured to receive parameter values.
- ENDPARAMETERS - end of a parameter value block.

## **B.2 Event-Level Parameters**

The following event-level parameters are provided:

- EVENTSTART – start time of the event in the format “YYYY/DDD HH:MM:SS”.
- EVENTSTOP – stop time of the event in the format “YYYY/DDD HH:MM:SS”.
- EVENTID – unique 7-character number used to reference the event.
- SUPIDEN – Support Identifier.
- TDRS – TDRS name
- VIC – Vehicle Identification Code.
- USMTYPE – class of latest USM received for this event may have one of the following values:
  - Fixed-Normal

- Fixed-Premium
- Fixed-Sim
- Flexible-Normal
- Flexible-Sim
- PROTOTYPE\_EVENTID – Prototype Event ID code, if it was specified in the original request.
- SBANDPNCODE – S-band PN code assignment
- KBANDPNCODE – K/Ka-band PN code assignment

### B.3 Service-Level Parameters

The following service-level parameters are provided:

- SERVICETYPE – service type (MAF, SSAF, MAR, etc.)
- SSCCODE – Service Specification Code (SSC) used to specify this service.
- SERVICESTART – start time of the service in the format “YYYY/DDD HH:MM:SS”.
- SERVICESTOP – stop time of the service in the format “YYYY/DDD HH:MM:SS”.
- LINKID – antenna or link ID.

### B.4 Service Parameter Values

The service parameter values for each service type are listed in Tables B-1 through B-13. The parameter name used in the active schedule file, description, units, and possible enumeration values are provided for each parameter.

### B.5 Sample File

Following is a sample of an active schedule file. In this case only one scheduled event is shown with three services. Service parameter values are included with enumerated parameters expanded to show a text string. For brevity not all service parameters are shown.

```

CREATIONTIME="2002/338 01:19:48"
EVENTCOUNT="1"
SCHEDULEDEVENT1
  EVENTSTART="2002/338 23:00:00"
  EVENTSTOP="2002/338 23:20:00"
  EVENTID="0102792"
  SUPIDEN="D8603WD"
  TDRS="TDE"
  VIC="01"

```

```

USMTYPE="Fixed-Normal"
SERVICECOUNT="3"
PROTOTYPE_EVENTID=""
SBANDPNCODE="71"
KBANDPNCODE="71"
SERVICE1
  SERVICETYPE="SSAF"
  SSCCODE="H91"
  SERVICESTART="2002/338 23:00:00"
  SERVICESTOP="2002/338 23:20:00"
  LINKID="2"
  PARAMETERCOUNT="11"
  PARAMETERS
    ANTENNA="None"
    CCPN="Yes"
    DATARATEMAXF="2000"
    DOPC="Yes"
    .
    .
  ENDPARAMETERS
ENDSERVICE1
SERVICE2
  SERVICETYPE="SSAR"
  SSCCODE="I83"
  SERVICESTART="2002/338 23:00:00"
  SERVICESTOP="2002/338 23:20:00"
  LINKID="2"
  PARAMETERCOUNT="42"
  PARAMETERS
    ANTENNA="None"
    BIPHLOCVTI="No"
    BIPHLOCVTQ="No"
    CPR="+00"
    CROSSFL="MA"
    DATACHANNELCONFIG="Single source, identical data"
    DATACODINGI="Code 1"
    DATACODINGQ="Code 1"
    DATARATEMAXI="2048"
    DATARATEMAXQ="2048"
    .
    .
  ENDPARAMETERS
ENDSERVICE2
SERVICE3
  SERVICETYPE="TRKN"
  SSCCODE="T72"
  SERVICESTART="2002/338 23:00:00"
  SERVICESTOP="2002/338 23:20:00"
  LINKID=""
  PARAMETERCOUNT="10"
  PARAMETERS
    FLCC="H91"

```

MARLINKID= "     "  
 NORMALDOPPLERTRACKING= "Two-way"  
 NORMALRANGETRACKING= "Yes "  
 .  
 .  
 ENDPARAMETERS  
 ENDSERVICE3  
 ENDSCHEDULEDEVENT1

**Table B-1. MAF/SMAF Service Parameters**

Parameter Name	Description	Units	Enumeration Values
DATARATEMAXF	Maximum Data Rate	bps	
DOPC	Doppler Compensation Required		0="No", 1="Yes"
DTR1	Data Rate	bps	
FRQ1	Receive Frequency	10 Hz	
UDAN	User Despun Antenna Type		0="No type", 1="Type 1", 2="Type 2"
UIFCADDRESSF	User Interface Channel		

**Table B-2. SSAF Service Parameters**

Parameter Name	Description	Units	Enumeration Values
ANTENNA	SA Antenna		0="Either", 1="SA1", 2="SA2"
CCPN	Command Channel PN Modulation		0="No", 1="Yes"
DATARATEMAXF	Maximum Data Rate	bps	
DOPC	Doppler Compensation Required		0="No", 1="Yes"
DTR1	Data Rate	bps	
FRQ1	Receive Frequency	10 Hz	
POLN	Polarization		0="LCP", 1="RCP"
POWERMODE	Power Mode		0="Normal", 1="High"
SERVICECONFIG	Service Configuration		1="Normal User"
UDAN	User Despun Antenna Type		0="No type", 1="Type 1", 2="Type 2"
UIFCADDRESSF	User Interface Channel		

**Table B-3. KSAF/KASAF Service Parameters**

Parameter Name	Description	Units	Enumeration Values
ANTENNA	SA Antenna		0="Either", 1="SA1", 2="SA2"
CCPN	Command Channel PN Modulation		0="No", 1="Yes"
DATARATEMAXF	Maximum Data Rate	bps	
DOPC	Doppler Compensation Required		0="No", 1="Yes"
DTR1	Data Rate	bps	
FRQ1	Receive Frequency	10 Hz	
POLN	Polarization		0="LCP", 1="RCP"
POWERMODE	Power Mode		0="Normal", 1="High"
SERVICECONFIG	Service Configuration		1="Normal User"
UIFCADDRESSF	User Interface Channel		

**Table B-4. MAR Service Parameters**

Parameter Name	Description	Units	Enumeration Values
BIPHLOCVTI	Symbol Format Conversion I Channel		0="No", 1="Yes"
BIPHLOCVTQ	Symbol Format Conversion Q Channel		0="No", 1="Yes"
CONFIGURATION	Configuration		0="I Channel only", 1="Q Channel only", 2="Both I and Q Channel"
CPR	I/Q Channel Power Ratio	0.1 dB	
CROSSFL	Cross-Support Forward Link		1="SSA1", 2="SSA2"
DATACHANNELCONFIG	Data Channel Configuration		0="Single Data Source", 1="Dual Data Source"
DATARATEMAXI	Maximum Data Rate I Channel	bps	
DATARATEMAXQ	Maximum Data Rate Q Channel	bps	
DSD1	Data Stream ID I Channel	octal	
DSD2	Data Stream ID Q Channel	octal	
DTF1	Data Format Channel I		0="NRZ-L", 1="NRZ-M", 2="NRZ-S"
DTF2	Data Format Channel Q		0="NRZ-L", 1="NRZ-M", 2="NRZ-S"
DTR1	Data Rate I Channel	bps	
DTR2	Data Rate Q Channel	bps	
ERP1	Maximum EIRP	0.1 dB W	
ERP2	Mimimum EIRP	0.1 dB W	
FRQ1	Transmit Frequency	10 Hz	
G2II	G2 Inversion I Channel		0="Normal", 1="Invert"
G2IQ	G2 Inversion Q Channel		0="Normal", 1="Invert"
JTR1	Data Bit Jitter I Channel		0="None", 1="0.01%", 2="0.1%"
JTR2	Data Bit Jitter Q Channel		0="None", 1="0.01%", 2="0.1%"
MDMMAXI	Maximum MDM Data Rate I Channel	bps	
MDMMAXQ	Maximum MDM Data Rate Q Channel	bps	
MODE	Mode		1="Mode 1 (Coherent)", 2="Mode 2 (Non-coherent)"
RECEIVERCONFIG	Receiver Configuration		0="Normal", 1="Cross Support"
RTNCHANDLYDATA	Return Channel Time Delay Data Required		0="No", 1="Yes"
UDAN	User Despun Antenna Type		0="No type", 1="Type 1", 2="Type 2"
UIFCADDRESSI	User Interface Channel ID I Channel		
UIFCADDRESSQ	User Interface Channel ID Q Channel		

**Table B-5. SSAR Service Parameters (1 of 2)**

Parameter Name	Description	Units	Enumeration Values
ANTENNA	SA Antenna		0="Either", 1="SA1", 2="SA2"
BIPHLOCVTI	Symbol Format Conversion I Channel		0="No", 1="Yes"
BIPHLOCVTQ	Symbol Format Conversion Q Channel		0="No", 1="Yes"
CPR	I/Q Channel Power Ratio	0.1 dB	
CROSSFL	Cross-Support Forward Link		0="MA", 1="SSA1", 2="SSA2", 3="SMA"
DATACHANNELCONFIG	Data Channel Configuration		0="Single source, identical data", 1="Dual source", 2="Single source, alternate data"
DATACODINGI	Data Coding I Channel		0="Uncoded", 1="Code 1", 2="Code 2", 3="Code 3"
DATACODINGQ	Data Coding Q Channel		0="Uncoded", 1="Code 1", 2="Code 2", 3="Code 3"
DATARATEMAXI	Maximum Data Rate I Channel	bps	
DATARATEMAXQ	Maximum Data Rate Q Channel	bps	
DG	Data Group		1="DG1", 2="DG2"
DG1CONFIGURATION	DG1 Configuration		0="I Channel only", 1="Q Channel only", 2="Both I and Q Channel"
DG1M	DG1 Mode		1="Mode 1, Coherent", 2="Mode 2, Noncoherent", 3="Mode 3, Coherent, no Q deinterleave", 4="Mode 3, Coherent, Q deinterleave"
DG2M	DG2 Modulation		0="QPSK", 1="BPSK"
DG2T	DG2 Type		0="Noncoherent, I and Q deinterleave", 1="Noncoherent, no deinterleave", 2="Coherent, no deinterleave", 3="Coherent, I and Q deinterleave", 4="Noncoherent, I deinterleave", 5="Noncoherent, Q deinterleave", 6="Coherent, Q deinterleave", 7="Coherent, I deinterleave"
DSD1	Data Stream ID I Channel	octal	
DSD2	Data Stream ID Q Channel	octal	
DTF1	Data Format Channel I		0="NRZ-L", 1="NRZ-M", 2="NRZ-S", 3="Biphase-L", 4="Biphase-M", 5="Biphase-S"

**Table B-5. SSAR Service Parameters (2 of 2)**

Parameter Name	Description	Units	Enumeration Values
DTF2	Data Format Channel Q		0="NRZ-L", 1="NRZ-M", 2="NRZ-S", 3="Biphase-L", 4="Biphase-M", 5="Biphase-S"
DTR1	Data Rate I Channel	bps	
DTR2	Data Rate Q Channel	bps	
ERP1	Maximum EIRP	0.1 dB W	
ERP2	Mimimum EIRP	0.1 dB W	
FRQ1	Transmit Frequency	10 Hz	
G2II	G2 Inversion I Channel		0="Normal", 1="Invert"
G2IQ	G2 Inversion Q Channel		0="Normal", 1="Invert"
HDRMMAXI	Maximum HDRM Data Rate I Channel	bps	
HDRMMAXQ	Maximum HDRM Data Rate Q Channel	bps	
HDRMPORTI	High Data Rate Multiplexer Port I Channel		
HDRMPORTQ	High Data Rate Multiplexer Port Q Channel		
JTR1	Data Bit Jitter I Channel		0="None", 1="0.01%", 2="0.1%"
JTR2	Data Bit Jitter Q Channel		0="None", 1="0.01%", 2="0.1%"
MDMMAXI	Maximum MDM Data Rate I Channel	bps	
MDMMAXQ	Maximum MDM Data Rate Q Channel	bps	
POLN	Polarization		0="LCP", 1="RCP"
RECEIVERCONFIG	Receiver Configuration		0="Normal", 1="Cross Support"
RTNCHANDLYDATA	Return Channel Time Delay Data Required		0="No", 1="Yes"
SERVICECONFIG	Service Configuration		1="Normal User"
SSACOMBINING	SSA Combining		0="No", 1="Yes"
UDAN	User Despun Antenna Type		0="No type", 1="Type 1", 2="Type 2"
UIFCADDRESSI	User Interface Channel ID I Channel		
UIFCADDRESSQ	User Interface Channel ID Q Channel		

**Table B-6. SMAR Service Parameters (1 of 2)**

Parameter Name	Description	Units	Enumeration Values
BIPHLOCVTI	Symbol Format Conversion I Channel		0="No", 1="Yes"
BIPHLOCVTQ	Symbol Format Conversion Q Channel		0="No", 1="Yes"
CPR	I/Q Channel Power Ratio	0.1 dB	
CROSSFL	Cross-Support Forward Link		0="MA", 1="SSA1", 2="SSA2", 3="SMA"
DATACHANNELCONFIG	Data Channel Configuration		0="Single source, identical data", 1="Dual source", 2="Single source, alternate data"
DATACODINGI	Data Coding I Channel		0="Uncoded", 1="Code 1", 2="Code 2", 3="Code 3"
DATACODINGQ	Data Coding Q Channel		0="Uncoded", 1="Code 1", 2="Code 2", 3="Code 3"
DATARATEMAXI	Maximum Data Rate I Channel	bps	
DATARATEMAXQ	Maximum Data Rate Q Channel	bps	
DG	Data Group		1="DG1", 2="DG2"
DG1CONFIGURATION	DG1 Configuration		0="I Channel only", 1="Q Channel only", 2="Both I and Q Channel"
DG1M	DG1 Mode		1="Mode 1, Coherent", 2="Mode 2, Noncoherent", 3="Mode 3, Coherent, no Q deinterleave", 4="Mode 3, Coherent, Q deinterleave"
DG2M	DG2 Modulation		0="QPSK", 1="BPSK"
DG2T	DG2 Type		0="Noncoherent, I and Q deinterleave", 1="Noncoherent, no deinterleave", 2="Coherent, no deinterleave", 3="Coherent, I and Q deinterleave", 4="Noncoherent, I deinterleave", 5="Noncoherent, Q deinterleave", 6="Coherent, Q deinterleave", 7="Coherent, I deinterleave"
DSD1	Data Stream ID I Channel	octal	
DSD2	Data Stream ID Q Channel	octal	

**Table B-6. SMAR Service Parameters (2 of 2)**

Parameter Name	Description	Units	Enumeration Values
DTF1	Data Format Channel I		0="NRZ-L", 1="NRZ-M", 2="NRZ-S", 3="Biphase-L", 4="Biphase-M", 5="Biphase-S"
DTF2	Data Format Channel Q		0="NRZ-L", 1="NRZ-M", 2="NRZ-S", 3="Biphase-L", 4="Biphase-M", 5="Biphase-S"
DTR1	Data Rate I Channel	bps	
DTR2	Data Rate Q Channel	bps	
ERP1	Maximum EIRP	0.1 dB W	
ERP2	Mimimum EIRP	0.1 dB W	
FRQ1	Transmit Frequency	10 Hz	
G2I1	G2 Inversion I Channel		0="Normal", 1="Invert"
G2IQ	G2 Inversion Q Channel		0="Normal", 1="Invert"
HDRMMAXI	Maximum HDRM Data Rate I Channel	bps	
HDRMMAXQ	Maximum HDRM Data Rate Q Channel	bps	
HDRMPORTI	High Data Rate Multiplexer Port I Channel		
HDRMPORTQ	High Data Rate Multiplexer Port Q Channel		
JTR1	Data Bit Jitter I Channel		0="None", 1="0.01%", 2="0.1%"
JTR2	Data Bit Jitter Q Channel		0="None", 1="0.01%", 2="0.1%"
MDMMAXI	Maximum MDM Data Rate I Channel	bps	
MDMMAXQ	Maximum MDM Data Rate Q Channel	bps	
RECEIVERCONFIG	Receiver Configuration		0="Normal", 1="Cross Support"
RTNCHANDLYDATA	Return Channel Time Delay Data Required		0="No", 1="Yes"
SERVICECONFIG	Service Configuration		1="Normal User"
UDAN	User Despun Antenna Type		0="No type", 1="Type 1", 2="Type 2"
UIFCADDRESSI	User Interface Channel ID I Channel		
UIFCADDRESSQ	User Interface Channel ID Q Channel		

**Table B-7. KSAR Service Parameter (1 of 2)**

Parameter Name	Description	Units	Enumeration Values
ANTENNA	SA Antenna		0="Either", 1="SA1", 2="SA2"
ATBW	Autotrack Enable/Disable		00000000="Enable", 00000001="Disable"
BIPHLOCVTI	Symbol Format Conversion I Channel		0="No", 1="Yes"
BIPHLOCVTQ	Symbol Format Conversion Q Channel		0="No", 1="Yes"
CPR	I/Q Channel Power Ratio	0.1 dB	
DATACHANNELCONFIG	Data Channel Configuration		0="Single Data Source", 1="Dual Data Source"
DATACODINGI	Data Coding I Channel		0="Uncoded", 1="Code 1"
DATACODINGQ	Data Coding Q Channel		0="Uncoded", 1="Code 1"
DATARATEMAXI	Maximum Data Rate I Channel	bps	
DATARATEMAXQ	Maximum Data Rate Q Channel	bps	
DG	Data Group		1="DG1", 2="DG2"
DG1CONFIGURATION	DG1 Configuration		0="I Channel only", 1="Q Channel only", 2="Both I and Q Channel"
DG1M	DG1 Mode		1="Mode 1, Coherent (PN on I and Q)", 2="Mode 2, Noncoherent (PN on I and Q)", 3="Mode 3, Coherent (PN on I)"
DG2M	DG2 Modulation		0="QPSK", 1="BPSK"
DG2T	DG2 Type		1="Noncoherent", 2="Coherent"
DSD1	Data Stream ID I Channel	octal	
DSD2	Data Stream ID Q Channel	octal	
DTF1	Data Format Channel I		0="NRZ-L", 1="NRZ-M", 2="NRZ-S", 3="Biphase-L", 4="Biphase-M", 5="Biphase-S"
DTF2	Data Format Channel Q		0="NRZ-L", 1="NRZ-M", 2="NRZ-S", 3="Biphase-L", 4="Biphase-M", 5="Biphase-S"
DTR1	Data Rate I Channel	bps	
DTR2	Data Rate Q Channel	bps	

**Table B-7. KSAR Service Parameter (2 of 2)**

Parameter Name	Description	Units	Enumeration Values
ERP1	Maximum EIRP	0.1 dB W	
ERP2	Mimimum EIRP	0.1 dB W	
FRQ1	Transmit Frequency	10 Hz	
G2I1	G2 Inversion I Channel		0="Normal", 1="Invert"
G2IQ	G2 Inversion Q Channel		0="Normal", 1="Invert"
HDRMMAXI	Maximum HDRM Data Rate I Channel	bps	
HDRMMAXQ	Maximum HDRM Data Rate Q Channel	bps	
JTR1	Data Bit Jitter I Channel		0="None", 1="0.01%", 2="0.1%"
JTR2	Data Bit Jitter Q Channel		0="None", 1="0.01%", 2="0.1%"
MDMMAXI	Maximum MDM Data Rate I Channel	bps	
MDMMAXQ	Maximum MDM Data Rate Q Channel	bps	
POLN	Polarization		0="LCP", 1="RCP"
RTNCHANDLYDATA	Return Channel Time Delay Data Required		0="No", 1="Yes"
SERVICECONFIG	Service Configuration		1="Normal User"
UIFCADDRESSI	User Interface Channel ID I Channel		
UIFCADDRESSLI	User Interface Channel ID Low Rate Port I Channel		
UIFCADDRESSLQ	User Interface Channel ID Low Rate Port Q Channel		
UIFCADDRESSQ	User Interface Channel ID Q Channel		

**Table B-8. KASAR Service Parameters (1 of 2)**

Parameter Name	Description	Units	Enumeration Values
ANTENNA	SA Antenna		0="Either", 1="SA1", 2="SA2"
ATBW	Autotrack Enable/Disable		00000000="Enable", 00000001="Disable"
BIPHLOCVTI	Symbol Format Conversion I Channel		0="No", 1="Yes"
BIPHLOCVTQ	Symbol Format Conversion Q Channel		0="No", 1="Yes"
CPR	I/Q Channel Power Ratio	0.1 dB	
DATACHANNELCONFIG	Data Channel Configuration		0="Single Data Source", 1="Dual Data Source"
DATACODINGI	Data Coding I Channel		0="Uncoded", 1="Code 1"
DATACODINGQ	Data Coding Q Channel		0="Uncoded", 1="Code 1"
DATARATEMAXI	Maximum Data Rate I Channel	bps	
DATARATEMAXQ	Maximum Data Rate Q Channel	bps	
DG	Data Group		2="DG2"
DG1CONFIGURATION	DG1 Configuration		0="I Channel only", 1="Q Channel only", 2="Both I and Q Channel"
DG2M	DG2 Modulation		0="QPSK", 1="BPSK"
DG2T	DG2 Type		1="Noncoherent"
DSD1	Data Stream ID I Channel	octal	
DSD2	Data Stream ID Q Channel	octal	
DTF1	Data Format Channel I		0="NRZ-L", 1="NRZ-M", 2="NRZ-S", 3="Biphase-L", 4="Biphase-M", 5="Biphase-S"
DTF2	Data Format Channel Q		0="NRZ-L", 1="NRZ-M", 2="NRZ-S", 3="Biphase-L", 4="Biphase-M", 5="Biphase-S"
DTR1	Data Rate I Channel	bps	
DTR2	Data Rate Q Channel	bps	
ERP1	Maximum EIRP	0.1 dB W	
ERP2	Mimimum EIRP	0.1 dB W	
FRQ1	Transmit Frequency	10 Hz	
G2II	G2 Inversion I Channel		0="Normal", 1="Invert"
G2IQ	G2 Inversion Q Channel		0="Normal", 1="Invert"

**Table B-8. KASAR Service Parameters (2 of 2)**

Parameter Name	Description	Units	Enumeration Values
HDRMMAXI	Maximum HDRM Data Rate I Channel	bps	
HDRMMAXQ	Maximum HDRM Data Rate Q Channel	bps	
JTR1	Data Bit Jitter I Channel		0="None", 1="0.01%", 2="0.1%"
JTR2	Data Bit Jitter Q Channel		0="None", 1="0.01%", 2="0.1%"
MDMMAXI	Maximum MDM Data Rate I Channel	bps	
MDMMAXQ	Maximum MDM Data Rate Q Channel	bps	
POLN	Polarization		0="LCP", 1="RCP"
RTNCHANDLYDATA	Return Channel Time Delay Data Required		0="No", 1="Yes"
SERVICECONFIG	Service Configuration		1="Normal User"
UIFCADDRESSI	User Interface Channel ID I Channel		
UIFCADDRESSLI	User Interface Channel ID Low Rate Port I Channel		
UIFCADDRESSLQ	User Interface Channel ID Low Rate Port Q Channel		
UIFCADDRESSQ	User Interface Channel ID Q Channel		

**Table B-9. KASARWB Service Parameters**

Parameter Name	Description	Units	Enumeration Values
ANTENNA	SA Antenna		0="Either", 1="SA1", 2="SA2"
DATARATEMAXI	Maximum Data Rate I Channel	bps	
DATARATEMAXQ	Maximum Data Rate Q Channel	bps	
FRQ1	Transmit Frequency	10 Hz	
HDRMMAXI	Maximum HDRM Data Rate I Channel	bps	
HDRMMAXQ	Maximum HDRM Data Rate Q Channel	bps	
MDMMAXI	Maximum MDM Data Rate I Channel	bps	
MDMMAXQ	Maximum MDM Data Rate Q Channel	bps	
POLN	Polarization		0="LCP", 1="RCP"
SERVICECONFIG	Service Configuration		1="Normal User"

**Table B-10. TRKN Service Parameters**

Parameter Name	Description	Units	Enumeration Values
FLCC	Reference Forward Link		
MARLINKID	MA/SMA Return Link ID		
NORMALDOPPLERTRACKING	Doppler Tracking Required		0="Not Required", 1="One-way", 2="Two-way"
NORMALRANGETRACKING	Range Tracking Required		0="No", 1="Yes"
NORMALRETURNSERVICE	Return Service Type		0="MA", 1="SSA", 2="KSA", 5="SMA"
RLCC	Reference Return Link		
SRRQ	Sample Rate	samples/sec	0="1/1", 1="1/5", 2="1/10", 3="1/60", 4="1/300"
TRACKINGCONFIG	Tracking Configuration		0="Normal Tracking"
TTNR	Time Transfer Number of Samples	sample	
TTTR	Time Transfer Required		0="No", 1="Yes"

**Table B-11. TRKC Service Parameters**

Parameter Name	Description	Units	Enumeration Values
CROSSTRACKINGTYPE	Range/Doppler for Cross Support		0="Range", 1="Two-way Doppler", 2="Both",
FLCC	Reference Forward Link		
FWDLINK	Forward Link		0="MA", 1="SSA1", 2="SSA2", 3="SMA",
RLCC	Reference Return Link		
RTNLINK	Return Link		0="MA", 1="SSA1", 2="SSA2", 3="SMA",
SRRQ	Sample Rate	samples/sec	0="1/1", 1="1/5", 2="1/10", 3="1/60", 4="1/300",
TRACKINGCONFIG	Tracking Configuration		1="Cross Support",
TTNR	Time Transfer Number of Samples	sample	
TTTR	Time Transfer Required		0="No", 1="Yes",

**Table B-12. EETF Service Parameters**

<b>Parameter Name</b>	<b>Description</b>	<b>Units</b>	<b>Enumeration Values</b>
FORWARDGAIN	Simulation Gain/Temperature	0.1 dB/K	
LOCALDATASUPPORT	Local or MOC Data		0="Local signal source", 1="MOC signal source"
DATASTREAMID	Data Stream ID	octal	
UIFCADDRESSI	User Interface Channel ID		

**Table B-13. EETR Service Parameters**

<b>Parameter Name</b>	<b>Description</b>	<b>Units</b>	<b>Enumeration Values</b>
LOCALDATASUPPORT	Local or MOC Data		0="Local signal source", 1="MOC signal source"
RTNEIRP	Simulation EIRP	0.1 dB W	
UIFCADDRESSA	User Interface Channel ID		
UIFCADDRESSB	User Interface Channel ID		

# Appendix C. DAS Active Schedule File Format

---

## C.1 General

The general format of the active schedule file for DAS-scheduled events stored automatically on the Client workstation as described in Section 8.8 is as follows:

```
CREATIONTIME="YYYY/DDD HH:MM:SS"  
EVENTCOUNT="n"  
SCHEDULEEVENT1  
  <Event-level parameters>  
  .  
  .  
  SERVICECOUNT="m"  
  SERVICE1  
    SERVICETYPE="<service_type>"  
    PARAMETERCOUNT="p"  
    PARAMETERS  
      <Service parameter values>  
      .  
      .  
    ENDPARAMETERS  
    SERVICEPERIODCOUNT="t"  
    SERVICEPERIOD1  
      <Service period values>  
    ENDSERVICEPERIOD1  
    .  
    .  
    SERVICEPERIODt  
      <Service period values>  
    ENDSERVICEPERIODt  
  ENDSERVICE1  
  .  
  .  
  SERVICEm  
  .  
  .  
  ENDSERVICEm  
ENDSCHEDULEEVENT1  
SCHEDULEEVENT2  
  .  
  .  
ENDSCHEDULEEVENT2  
  .  
  .  
SCHEDULEEVENTn  
  .  
ENDSCHEDULEEVENTn
```

In general, parameter or keyword assignments are of the following format:

<keyword>="<value>"

Where the <value> is always provided within quotes. In cases where a parameter may have no value, the value is still provided as a null value ("").

The block definition keywords are defined as follows:

- CREATIONTIME – time that file was created on SWSI server.
- EVENTCOUNT – total number of events in file.
- SCHEDULEDEVENT – start of an event-level information block. Relative event number is used as a suffix.
- ENDSCHEDULEDEVENT – end of an event-level information block.
- SERVICECOUNT – total number of services for an event.
- SERVICE - start of a service-level information block. Service number is used as a suffix.
- ENDSERVICE - end of a service-level information block.
- PARAMETERCOUNT – total number of service parameters. Included only if configured to receive parameter values. Not provided for playback events.
- PARAMETERS – start of a parameter value block. Included only if configured to receive parameter values. Not provided for playback events.
- ENDPARAMETERS - end of a parameter value block.
- SERVICEPERIODCOUNT – total number of service periods. Not provided for playback events.
- SERVICEPERIOD – start of a service period-level information block. Service period number is used as a suffix. Not provided for playback events.
- ENDSERVICEPERIOD - end of a service period-level information block.

## C.2 Event-Level Parameters

The following event-level parameters are provided:

- EVENTSTART – start time of the event in the format “YYYY/DDD HH:MM:SS”.
- EVENTSTOP – stop time of the event in the format “YYYY/DDD HH:MM:SS”.
- EVENTID – unique 7-character number used to reference the event.

- TDRS – TDRS name
- SIC – Support Identification Code.

### **C.3 Service-Level Parameters**

The following service-level parameter is provided:

- SERVICETYPE – service type (DASMAR, DASPBK)

The following service-level parameters are provided for playback events only:

- IPADDRESS – IP address of host to which playback data will be sent.
- PORTNUMBER – TCP port number to which playback data will be sent.
- REALTIMEEVENTREQUESTID – request or event ID of the original real-time event for which the data is being played back.
- STARTTIMEOFREALTIMEDATASEGMENT – start time of the original real-time segment for which the data is being played back in the format “YYYY/DDD HH:MM:SS”.

### **C.4 Service Parameter Values**

The service parameter values for the DASMAR service type are listed in Table C-1. The parameter name used in the active schedule file, description, units, and possible enumeration values are provided for each parameter. In most cases the enumeration value received from DAS and the text value are the same, so only one value is shown. Two values are shown where a translation occurs, with the translated value on the right in quotes. Only those parameters applicable to the scheduled event are provided.

### **C.5 TDRS Service Period-Level Parameters**

The following service period-level parameters are provided for DASMAR events only:

- SERVICEPERIODSTARTTIME – start time of the support period in the format “YYYY/DDD HH:MM:SS”.
- SERVICEPERIODSTOPTIME – stop time of the support period in the format “YYYY/DDD HH:MM:SS”.
- SERVICEPERIODTDRS – TDRS name.
- SUPPORTSTATUS – status of the support period may have one of the following values:
  - Granted
  - Pending

## C.6 Sample File

Following is a sample of an active schedule file. In this case only two scheduled events are shown, each with one service. Service parameter values are included with enumerated parameters expanded. For brevity not all service parameters and TDRS service periods are shown.

```
CREATIONTIME="2002/365 19:52:51"
EVENTCOUNT="2"
SCHEDULEDEVENT1
  EVENTSTART="2003/001 00:00:00"
  EVENTSTOP="2003/001 00:25:29"
  EVENTID="4997125"
  TDRS="275"
  SIC="6951"
  SERVICECOUNT="1"
  SERVICE1
    SERVICETYPE="DASPBK"
    IPADDRESS="1.1.1.1"
    PORTNUMBER="7000"
    REALTIMEEVENTREQUESTID="4990278"
    STARTTIMEOFFREALTIMEDATASEGMENT="2002/365 00:54:05"
  ENDSERVICE1
ENDSCHEDULEDEVENT1
SCHEDULEDEVENT2
  EVENTSTART="2002/365 23:30:00"
  EVENTSTOP="2003/001 10:00:00"
  EVENTID="8901484"
  TDRS="ANY"
  SIC="6951"
  SERVICECOUNT="1"
  SERVICE1
    SERVICETYPE="DASMAR"
    PARAMETERCOUNT="15"
    PARAMETERS
      Protocols_Data="Async"
      Storage_Duration="3"
      IP_Add_I="150.144.173.78"
      Data_Fmt_I="NRZ-L"
      .
      .
    ENDPARAMETERS
  SERVICEPERIODCOUNT="21"
  SERVICEPERIOD1
    SERVICEPERIODSTARTTIME="2002/365 23:30:00"
    SERVICEPERIODSTOPTIME="2002/365 23:41:00"
    SERVICEPERIODTDRS="TDW"
    TDRSSUPPORTSTATUS="Granted"
  ENDSERVICEPERIOD1
  .
  .
```

```

SERVICEPERIOD21
SERVICEPERIODSTARTTIME="2003/001 09:59:00"
SERVICEPERIODSTOPTIME="2003/001 10:00:00"
SERVICEPERIODTDRS="TDE"
TDRSSUPPORTSTATUS="Granted"
ENDSERVICEPERIOD21
ENDSERVICE1
ENDSCHEDULEEVENT2

```

**Table C-1. DASMAR Service Parameters (1 of 3)**

Parameter Name	Description	Units	Enumeration Values
Acq_Mode	Acquisition Mode		Mode A="Mode A (700 Hz)" Mode B="Mode B (3000 Hz)"
Carrier_Freq_Ref	Acquisition Center Frequency	Hz	
Data_Fmt_I	Data Format I Channel		L="NRZ-L" M="NRZ-M" S="NRZ-S"
Data_Fmt_Q	Data Format Q Channel		L="NRZ-L" M="NRZ-M" S="NRZ-S"
Data_Rate_I	Data Rate I Channel	bps	
Data_Rate_Q	Data Rate Q Channel	bps	
Data_class_ID	Data Class ID		Not Applicable CCSDS frame CCSDS packet TDM frame Stripped TDM frame
Frame_length_I	Frame length I Channel	bytes	
Frame_length_Q	Frame length Q Channel	bytes	
Frame_sync_I	Frame Synchronization I Channel		On Off
Frame_sync_Q	Frame Synchronization Q Channel		On Off
G2_Symb_Inv_I	G2 Symbol Inversion I Channel		Upright Inverted
G2_Symb_Inv_Q	G2 Symbol Inversion Q Channel		Upright Inverted
IBU_Mode	Independent Beamforming Unit Mode		Adaptive mode Pointing mode
IP_Add_I	Destination IP Address I Channel		
IP_Add_Q	Destination IP Address Q Channel		
Mission_ID	Mission Identifier		
Modulation_Data_Ch	Modulation/Data Channel		BPSK SQPN single channel SQPN dual channel

**Table C-1. DASMAR Service Parameters (2 of 3)**

Parameter Name	Description	Units	Enumeration Values
PN_Code_I	Pseudo-random noise code I Channel	octal	
PN_Code_Q	Pseudo-random noise code Q Channel	octal	
Port_Num_I	Destination TCP Port Number I Channel		
Port_Num_Q	Destination TCP Port Number Q Channel		
Protocols_Data	Protocols (Data Format)		ACE AXAF-I IPDU LEO-T SFDU Async
Storage_Duration	Data storage duration	days	
Symb_Fmt_I	Symbol Format I Channel		NRZ="NRZ" Biphase="BIO-L"
Symb_Fmt_Q	Symbol Format Q Channel		NRZ="NRZ" Biphase="BIO-L"
Sync_mask_I	Frame Sync Mask I Channel	hex	
Sync_mask_Q	Frame Sync Mask Q Channel	hex	
Sync_pattern_I	Frame Sync Pattern I Channel	hex	
Sync_pattern_Q	Frame Sync Pattern Q Channel	hex	
Sync_pattern_lock_I	Allowable frame sync pattern errors during lock I Channel		
Sync_pattern_lock_Q	Allowable frame sync pattern errors during lock Q Channel		
Sync_pattern_search_I	Allowable frame sync pattern errors during search I Channel		
Sync_pattern_search_Q	Allowable frame sync pattern errors during search Q Channel		
VCP_CRC_I	Virtual Channel Processing CRC I Channel		On Off
VCP_CRC_Q	Virtual Channel Processing CRC Q Channel		On Off
VCP_CRC_Location_I	Virtual Channel Processing CRC Location I Channel		
VCP_CRC_Location_Q	Virtual Channel Processing CRC Location Q Channel		
VCP_I	Virtual Channel Processing I Channel		On Off
VCP_Q	Virtual Channel Processing Q Channel		On Off
VCP_RS_Interleave_I	Virtual Channel Processing Reed Solomon Interleave Depth I Channel		
VCP_RS_Interleave_Q	Virtual Channel Processing Reed Solomon Interleave Depth Q Channel		
VCP_RS_Location_I	Virtual Channel Processing Reed Solomon Codeword Location I Channel		
VCP_RS_Location_Q	Virtual Channel Processing Reed Solomon Codeword Location Q Channel		

**Table C-1. DASMAR Service Parameters (3 of 3)**

<b>Parameter Name</b>	<b>Description</b>	<b>Units</b>	<b>Enumeration Values</b>
VCP_RS_Virtual_Fill_I	Virtual Channel Processing Reed Solomon Virtual Fill I Channel		
VCP_RS_Virtual_Fill_Q	Virtual Channel Processing Reed Solomon Virtual Fill Q Channel		
VCP_Reed_Solomon_I	Virtual Channel Processing Reed Solomon I Channel		On Off
VCP_Reed_Solomon_Q	Virtual Channel Processing Reed Solomon Q Channel		On Off
VCP_Segregation_I	Virtual Channel Processing Segregation I Channel		On Off
VCP_Segregation_Q	Virtual Channel Processing Segregation Q Channel		On Off
VCP_Segregation_IP_Address_I	Virtual Channel Processing Segregation Destination IP Address I Channel		
VCP_Segregation_IP_Address_Q	Virtual Channel Processing Segregation Destination IP Address Q Channel		
VCP_Segregation_Port_Num_I	Virtual Channel Processing Segregation Destination TCP Port Number I Channel		
VCP_Segregation_Port_Num_Q	Virtual Channel Processing Segregation Destination TCP Port Number Q Channel		

## Appendix D. UPD Detail Panel Contents

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The UPD parameter values that are displayed in the UPD Detail Panel standard layouts are listed in Tables D-1 through D-15. The Parameter Name is used when editing a layout to specify which mnemonicName (parameter) is used for a display component. These names are also used in the UPD log file described in Appendix D. For enumerated parameters, the server sends numeric values to the Client, which then performs a translation to text according to the Enumeration Value assignments. Enumeration parameters that are also limit-checked are indicated in the tables by a Severity assignment for each enumeration value. Limit-checking and its effect on the UPD displays is described in more detail in Section 9.2.

**Table D-1. MAF/SMAF UPD Detail Parameters**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Elevation	Elevation	deg	
Radiated_Freq	Radiated Carrier Frequency	MHz	
Signal_EIRP	Signal EIRP	dBW	
Clock_Presence	Clock Presence		0="No" (Red) 1="Yes" (Green)
Data_Density	Data Transition Density	%	
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-2. SSAF UPD Detail Parameters**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Elevation	Elevation	deg	
Polarization	Polarization		0="LCP" 1="RCP"
Signal_EIRP	Signal EIRP	dBW	
Radiated_Freq	Radiated Carrier Frequency	MHz	
Power_Mode	Power Mode		0="Normal" 1="High"
Doppler_Comp	Doppler Compensation		0="Off" 1="On"
PN_Modulation	Command Channel PN Modulation		0="No" 1="Yes"
Clock_Presence	Clock Presence		0="No" (Red) 1="Yes" (Green)
Data_Density	Data Transition Density	%	
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-3. KSAF UPD Detail Parameters**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Elevation	Elevation	deg	
Polarization	Polarization		0="LCP" 1="RCP"
Signal_EIRP	Signal EIRP	dBW	
Radiated_Freq	Radiated Carrier Frequency	MHz	
Power_Mode	Power Mode		0="Normal" 1="High"
Doppler_Comp	Doppler Compensation		0="Off" 1="On"
PN_Modulation	Command Channel PN Modulation		0="No" 1="Yes"
Clock_Presence	Clock Presence		0="No" (Red) 1="Yes" (Green)
Data_Density	Data Transition Density	%	
TDRS_Yaw	TDRS Yaw	Deg	
TDRS_Roll	TDRS Roll	Deg	
TDRS_Pitch	TDRS Pitch	Deg	

**Table D-4. KaSAF UPD Detail Parameters**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Elevation	Elevation	deg	
Polarization	Polarization		0="LCP" 1="RCP"
Signal_EIRP	Signal EIRP	dBW	
Radiated_Freq	Radiated Carrier Frequency	MHz	
Power_Mode	Power Mode		0="Normal" 1="High"
Doppler_Comp	Doppler Compensation		0="Off" 1="On"
PN_Modulation	Command Channel PN Modulation		0="No" 1="Yes"
Clock_Presence	Clock Presence		0="No" (Red) 1="Yes" (Green)
Data_Density	Data Transition Density	%	
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-5. MAR UPD Detail Parameters (1 of 2)**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Beamforming_Equip_ID	Scheduled MA Return Link ID		
Elevation	Elevation	deg	
Doppler_Tracking	Doppler Tracking Status		0="Inactive" 1="One-way" 2="Two-way" 3="Cross-support"
Mode	Mode		1="Mode 1 (Coherent) 2="Mode 2 (Non-coherent)
IR_Lock	Integrated Receiver Lock Indicator		0="No Lock" (Red) 1="Lock" (Green)
IR_Signal_Strength	Integrated Receiver Signal Strength	dB-Hz	
Symbol_Sync_Lock_I	Symbol Synchronizer Lock Indicator, I Channel		0="No Lock" 1="Lock"
Symbol_Sync_Lock_Q	Symbol Synchronizer Lock Indicator, Q Channel		0="No Lock" 1="Lock"
BER_Status_I	BER Status, I Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)
BER_Status_Q	BER Status, Q Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)
Frame_Sync_Mode_I	Frame Sync Mode, I Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Frame_Sync_Mode_Q	Frame Sync Mode, Q Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"

**Table D-5. MAR UPD Detail Parameters (2 of 2)**

Parameter Name	Description	Units	Enumeration Values/Severities
Clock_Presence_I	Clock Presence, I Channel		0="No" (Red) 1="Yes" (Green)
Clock_Presence_Q	Clock Presence, Q Channel		0="No" (Red) 1="Yes" (Green)
Data_Density_I	Data Transition Density, I Channel	%	
Data_Density_Q	Data Transition Density, Q Channel	%	
Frames_in_Lock_I	Percent Frames in Lock, I Channel	%	
Frames_in_Lock_Q	Percent Frames in Lock, Q Channel	%	
Sync_Dropout_Count_I	Sync Lock Dropout Count, I Channel		
Sync_Dropout_Count_Q	Sync Lock Dropout Count, Q Channel		
Frame_Sync_Word_BER_I	Frame Sync Word BER, I Channel		
Frame_Sync_Word_BER_Q	Frame Sync Word BER, Q Channel		
Range_Tracking_Status	Range Tracking Status		0="Inactive" 1="Active" 2="Cross-support"
Receiver_Coherency	Receiver Coherency Indicator		0="Noncoherent" 1="Coherent"
Channel_Power_Ratio	I/Q Channel Power Ratio	dB	
Configuration	Configuration		0="I Channel Only" 1="Q Channel Only" 2="I and Q Channels"
Data_Channel_Config	Data Channel Configuration		0="Single source" 1="Dual source"
Data_Format_Conv_I	Data Format Conversion Configuration, I Channel		0="No" 1="Yes"
Data_Format_Conv_Q	Data Format Conversion Configuration, Q Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_I	Symbol Format Conversion Biphas to NRZ, I Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_Q	Symbol Format Conversion Biphas to NRZ, Q Channel		0="No" 1="Yes"
G2_Inversion_I	G2 Inversion, I Channel		0="Not inverted" 1="Inverted"
G2_Inversion_Q	G2 Inversion, Q Channel		0="Not inverted" 1="Inverted"
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-6. SSAR DG1 UPD Detail Parameters (1 of 3)**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Elevation	Elevation	deg	
Polarization	Polarization		0="LCP" 1="RCP"
Doppler_Tracking	Doppler Tracking Status		0="Inactive" 1="One-way" 2="Two-way" 3="Cross-support"
IR_Lock	Integrated Receiver Lock Indicator		0="No Lock" (Red) 1="Lock" (Green)
IR_Signal_Strength	Integrated Receiver Signal Strength	dB-Hz	
Receiver_Coherency	Receiver Coherency Indicator		0="Noncoherent" 1="Coherent"
DG1_Mode	DG1 Mode		1="Mode 1" 2="Mode 2" 3="Mode 3"
Dinterleaving	Deinterleaving Selection		0="No deinterleaving" 1="I Deinterleaved" 2="Q Deinterleaved" 3="I and Q Deinterleaved"
Symbol_Sync_Lock_I	Symbol Synchronizer Lock Indicator, I Channel		0="No Lock" 1="Lock"
Symbol_Sync_Lock_Q	Symbol Synchronizer Lock Indicator, Q Channel		0="No Lock" 1="Lock"
BER_Status_I	BER Status, I Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)
BER_Status_Q	BER Status, Q Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)

**Table D-6. SSAR DG1 UPD Detail Parameters (2 of 3)**

Parameter Name	Description	Units	Enumeration Values/Severities
Frame_Sync_Mode_I	Frame Sync Mode, I Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Frame_Sync_Mode_Q	Frame Sync Mode, Q Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Clock_Presence_I	Clock Presence, I Channel		0="No" (Red) 1="Yes" (Green)
Clock_Presence_Q	Clock Presence, Q Channel		0="No" (Red) 1="Yes" (Green)
Data_Density_I	Data Transition Density, I Channel	%	
Data_Density_Q	Data Transition Density, Q Channel	%	
Frames_in_Lock_I	Percent Frames in Lock, I Channel	%	
Frames_in_Lock_Q	Percent Frames in Lock, Q Channel	%	
Sync_Dropout_Count_I	Sync Lock Dropout Count, I Channel		
Sync_Dropout_Count_Q	Sync Lock Dropout Count, Q Channel		
Frame_Sync_Word_BER_I	Frame Sync Word BER, I Channel		
Frame_Sync_Word_BER_Q	Frame Sync Word BER, Q Channel		
DG1_Configuration	DG1 Configuration		0="I Channel Only" 1="Q Channel Only" 2="I and Q Channels"
Receiver_Configuration	Receiver Configuration		0="Normal" 1="Cross-support"
Channel_Power_Ratio	I/Q Channel Power Ratio	dB	
Data_Channel_Config	Data Channel Configuration		0="Single source, identical data" 1="Dual source" 2="Single source, alternate data"
SSA_Combining	SSA Combining		0="No" 1="Yes"
Range_Tracking_Status	Range Tracking Status		0="Inactive" 1="Normal" 2="Cross-support"
Data_Format_Conv_I	Data Format Conversion Configuration, I Channel		0="No" 1="Yes"
Data_Format_Conv_Q	Data Format Conversion Configuration, Q Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_I	Symbol Format Conversion Biphase to NRZ, I Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_Q	Symbol Format Conversion Biphase to NRZ, Q Channel		0="No" 1="Yes"

**Table D-6. SSAR DG1 UPD Detail Parameters (3 of 3)**

<b>Parameter Name</b>	<b>Description</b>	<b>Units</b>	<b>Enumeration Values/Severities</b>
Data_Coding_I	Data Coding, I Channel		0="Uncoded" 1="Code 1 (Rate 1/2)" 2="Code 2 (Rate 1/2, G1 inv)" 3="Code 3 (Rate 1/3)"
Data_Coding_Q	Data Coding, Q Channel		0="Uncoded" 1="Code 1 (Rate 1/2)" 2="Code 2 (Rate 1/2, G1 inv)" 3="Code 3 (Rate 1/3)"
G2_Inversion_I	G2 Inversion, I Channel		0="Not inverted" 1="Inverted"
G2_Inversion_Q	G2 Inversion, Q Channel		0="Not inverted" 1="Inverted"
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-7. SSAR DG2 UPD Detail Parameters (1 of 2)**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Elevation	Elevation	deg	
Polarization	Polarization		0="LCP" 1="RCP"
Doppler_Tracking	Doppler Tracking Status		0="Inactive" 1="One-way" 2="Two-way" 3="Cross-support"
IR_Lock	Integrated Receiver Lock Indicator		0="No Lock" (Red) 1="Lock" (Green)
IR_Signal_Strength	Integrated Receiver Signal Strength	dB-Hz	
Receiver_Coherency	Receiver Coherency Indicator		0="Noncoherent" 1="Coherent"
DG2_Modulation	DG2 Modulation		0="QPSK" 1="BPSK"
Dinterleaving	Deinterleaving Selection		0="No deinterleaving" 1="I Deinterleaved" 2="Q Deinterleaved" 3="I and Q Deinterleaved"
Symbol_Sync_Lock_I	Symbol Synchronizer Lock Indicator, I Channel		0="No Lock" 1="Lock"
Symbol_Sync_Lock_Q	Symbol Synchronizer Lock Indicator, Q Channel		0="No Lock" 1="Lock"
BER_Status_I	BER Status, I Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)
BER_Status_Q	BER Status, Q Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)

**Table D-7. SSAR DG2 UPD Detail Parameters (2 of 2)**

Parameter Name	Description	Units	Enumeration Values/Severities
Frame_Sync_Mode_I	Frame Sync Mode, I Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Frame_Sync_Mode_Q	Frame Sync Mode, Q Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Clock_Presence_I	Clock Presence, I Channel		0="No" (Red) 1="Yes" (Green)
Clock_Presence_Q	Clock Presence, Q Channel		0="No" (Red) 1="Yes" (Green)
Data_Density_I	Data Transition Density, I Channel	%	
Data_Density_Q	Data Transition Density, Q Channel	%	
Frames_in_Lock_I	Percent Frames in Lock, I Channel	%	
Frames_in_Lock_Q	Percent Frames in Lock, Q Channel	%	
Sync_Dropout_Count_I	Sync Lock Dropout Count, I Channel		
Sync_Dropout_Count_Q	Sync Lock Dropout Count, Q Channel		
Frame_Sync_Word_BER_I	Frame Sync Word BER, I Channel		
Frame_Sync_Word_BER_Q	Frame Sync Word BER, Q Channel		
Receiver_Configuration	Receiver Configuration		0="Normal" 1="Cross-support"
Channel_Power_Ratio	I/Q Channel Power Ratio	dB	
Data_Channel_Config	Data Channel Configuration		0="Single source" 1="Dual source" 2="Single source, alternate data"
SSA_Combining	SSA Combining		0="No" 1="Yes"
Data_Format_Conv_I	Data Format Conversion Configuration, I Channel		0="No" 1="Yes"
Data_Format_Conv_Q	Data Format Conversion Configuration, Q Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_I	Symbol Format Conversion Biphas to NRZ, I Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_Q	Symbol Format Conversion Biphas to NRZ, Q Channel		0="No" 1="Yes"
Data_Coding_I	Data Coding, I Channel		0="Uncoded" 1="Code 1 (Rate 1/2) 2="Code 2 (Rate 1/2, G1 inv) 3="Code 3 (Rate 1/3)
Data_Coding_Q	Data Coding, Q Channel		0="Uncoded" 1="Code 1 (Rate 1/2) 2="Code 2 (Rate 1/2, G1 inv) 3="Code 3 (Rate 1/3)
G2_Inversion_I	G2 Inversion, I Channel		0="Not inverted" 1="Inverted"
G2_Inversion_Q	G2 Inversion, Q Channel		0="Not inverted" 1="Inverted"
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-8. SMAR DG1 UPD Detail Parameters (1 of 3)**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Equipment_String_ID	SMAR Link ID		
Elevation	Elevation	deg	
Polarization	Polarization		0="LCP" 1="RCP"
Doppler_Tracking	Doppler Tracking Status		0="Inactive" 1="One-way" 2="Two-way" 3="Cross-support"
IR_Lock	Integrated Receiver Lock Indicator		0="No Lock" (Red) 1="Lock" (Green)
IR_Signal_Strength	Integrated Receiver Signal Strength	dB-Hz	
Receiver_Coherency	Receiver Coherency Indicator		0="Noncoherent" 1="Coherent"
DG1_Mode	DG1 Mode		1="Mode 1" 2="Mode 2" 3="Mode 3"
Dinterleaving	Deinterleaving Selection		0="No deinterleaving" 1="I Deinterleaved" 2="Q Deinterleaved" 3="I and Q Deinterleaved"
Symbol_Sync_Lock_I	Symbol Synchronizer Lock Indicator, I Channel		0="No Lock" 1="Lock"
Symbol_Sync_Lock_Q	Symbol Synchronizer Lock Indicator, Q Channel		0="No Lock" 1="Lock"
BER_Status_I	BER Status, I Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)

**Table D-8. SMAR DG1 UPD Detail Parameters (2 of 3)**

Parameter Name	Description	Units	Enumeration Values/Severities
BER_Status_Q	BER Status, Q Channel		0="Status not valid" (Red) 1="BER >= 10-3" (Red) 2="10-3 > BER >= 10-4" (Red) 3="10-4 > BER >= 10-5" (Red) 4="10-5 > BER >= 10-6" (Green) 5="10-6 > BER >= 10-7" (Green) 6="10-7 > BER >= 10-8" (Green) 7="10-8 > BER >= 10-9" (Green) 8="BER < 10-9" (Green)
Frame_Sync_Mode_I	Frame Sync Mode, I Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Frame_Sync_Mode_Q	Frame Sync Mode, Q Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Clock_Presence_I	Clock Presence, I Channel		0="No" (Red) 1="Yes" (Green)
Clock_Presence_Q	Clock Presence, Q Channel		0="No" (Red) 1="Yes" (Green)
Data_Density_I	Data Transition Density, I Channel	%	
Data_Density_Q	Data Transition Density, Q Channel	%	
Frames_in_Lock_I	Percent Frames in Lock, I Channel	%	
Frames_in_Lock_Q	Percent Frames in Lock, Q Channel	%	
Sync_Dropout_Count_I	Sync Lock Dropout Count, I Channel		
Sync_Dropout_Count_Q	Sync Lock Dropout Count, Q Channel		
Frame_Sync_Word_BER_I	Frame Sync Word BER, I Channel		
Frame_Sync_Word_BER_Q	Frame Sync Word BER, Q Channel		
DG1_Configuration	DG1 Configuration		0="I Channel Only" 1="Q Channel Only" 2="I and Q Channels"
Receiver_Configuration	Receiver Configuration		0="Normal" 1="Cross-support"
Channel_Power_Ratio	I/Q Channel Power Ratio	dB	
Data_Channel_Config	Data Channel Configuration		0="Single source, identical data" 1="Dual source" 2="Single source, alternate data"
Range_Tracking_Status	Range Tracking Status		0="Inactive" 1="Normal" 2="Cross-support"
Data_Format_Conv_I	Data Format Conversion Configuration, I Channel		0="No" 1="Yes"
Data_Format_Conv_Q	Data Format Conversion Configuration, Q Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_I	Symbol Format Conversion Biphase to NRZ, I Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_Q	Symbol Format Conversion Biphase to NRZ, Q Channel		0="No" 1="Yes"

**Table D-8. SMAR DG1 UPD Detail Parameters (3 of 3)**

<b>Parameter Name</b>	<b>Description</b>	<b>Units</b>	<b>Enumeration Values/Severities</b>
Data_Coding_I	Data Coding, I Channel		0="Uncoded" 1="Code 1 (Rate 1/2)" 2="Code 2 (Rate 1/2, G1 inv)" 3="Code 3 (Rate 1/3)"
Data_Coding_Q	Data Coding, Q Channel		0="Uncoded" 1="Code 1 (Rate 1/2)" 2="Code 2 (Rate 1/2, G1 inv)" 3="Code 3 (Rate 1/3)"
G2_Inversion_I	G2 Inversion, I Channel		0="Not inverted" 1="Inverted"
G2_Inversion_Q	G2 Inversion, Q Channel		0="Not inverted" 1="Inverted"
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	
Frame_Sync_Mode_I	Frame Sync Mode, I Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"

**Table D-9. SMAR DG2 UPD Detail Parameters (1 of 2)**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Equipment_String_ID	SMAR Link ID		
Elevation	Elevation	deg	
Polarization	Polarization		0="LCP" 1="RCP"
Doppler_Tracking	Doppler Tracking Status		0="Inactive" 1="One-way" 2="Two-way" 3="Cross-support"
IR_Lock	Integrated Receiver Lock Indicator		0="No Lock" (Red) 1="Lock" (Green)
IR_Signal_Strength	Integrated Receiver Signal Strength	dB-Hz	
Receiver_Coherency	Receiver Coherency Indicator		0="Noncoherent" 1="Coherent"
DG2_Modulation	DG2 Modulation		0="QPSK" 1="BPSK"
Dinterleaving	Deinterleaving Selection		0="No deinterleaving" 1="I Deinterleaved" 2="Q Deinterleaved" 3="I and Q Deinterleaved"
Symbol_Sync_Lock_I	Symbol Synchronizer Lock Indicator, I Channel		0="No Lock" 1="Lock"
Symbol_Sync_Lock_Q	Symbol Synchronizer Lock Indicator, Q Channel		0="No Lock" 1="Lock"
BER_Status_I	BER Status, I Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)
BER_Status_Q	BER Status, Q Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)
Frame_Sync_Mode_I	Frame Sync Mode, I Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"

**Table D-9. SMAR DG2 UPD Detail Parameters (2 of 2)**

Parameter Name	Description	Units	Enumeration Values/Severities
Frame_Sync_Mode_Q	Frame Sync Mode, Q Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Clock_Presence_I	Clock Presence, I Channel		0="No" (Red) 1="Yes" (Green)
Clock_Presence_Q	Clock Presence, Q Channel		0="No" (Red) 1="Yes" (Green)
Data_Density_I	Data Transition Density, I Channel	%	
Data_Density_Q	Data Transition Density, Q Channel	%	
Frames_in_Lock_I	Percent Frames in Lock, I Channel	%	
Frames_in_Lock_Q	Percent Frames in Lock, Q Channel	%	
Sync_Dropout_Count_I	Sync Lock Dropout Count, I Channel		
Sync_Dropout_Count_Q	Sync Lock Dropout Count, Q Channel		
Frame_Sync_Word_BER_I	Frame Sync Word BER, I Channel		
Frame_Sync_Word_BER_Q	Frame Sync Word BER, Q Channel		
Receiver_Configuration	Receiver Configuration		0="Normal" 1="Cross-support"
Channel_Power_Ratio	I/Q Channel Power Ratio	dB	
Data_Channel_Config	Data Channel Configuration		0="Single source" 1="Dual source" 2="Single source, alternate data"
Data_Format_Conv_I	Data Format Conversion Configuration, I Channel		0="No" 1="Yes"
Data_Format_Conv_Q	Data Format Conversion Configuration, Q Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_I	Symbol Format Conversion Biphase to NRZ, I Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_Q	Symbol Format Conversion Biphase to NRZ, Q Channel		0="No" 1="Yes"
Data_Coding_I	Data Coding, I Channel		0="Uncoded" 1="Code 1 (Rate 1/2) 2="Code 2 (Rate 1/2, G1 inv) 3="Code 3 (Rate 1/3)
Data_Coding_Q	Data Coding, Q Channel		0="Uncoded" 1="Code 1 (Rate 1/2) 2="Code 2 (Rate 1/2, G1 inv) 3="Code 3 (Rate 1/3)
G2_Inversion_I	G2 Inversion, I Channel		0="Not inverted" 1="Inverted"
G2_Inversion_Q	G2 Inversion, Q Channel		0="Not inverted" 1="Inverted"
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-10. KSAR DG1 UPD Detail Parameters (1 of 3)**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Elevation	Elevation	deg	
Autotrack_Status	Autotrack Status		0="Disabled" 1="No Signal Presence" 2="Signal Presence" 3="Zero Crossing" 4="Autotrack"
Polarization	Polarization		0="LCP" 1="RCP"
Doppler_Tracking	Doppler Tracking Status		0="Inactive" 1="One-way" 2="Two-way"
DG1_Mode	DG1 Mode		1="Mode 1" 2="Mode 2" 3="Mode 3"
Receiver_Coherency	Receiver Coherency Indicator		0="Noncoherent" 1="Coherent"
First_Demod_Type	First Demodulator Type Indicator, I Channel		1="IR" 2="HDRR"
First_Demod_Lock	First Demodulator Lock Indicator, I Channel		0="No Lock" (Red) 1="Lock" (Green)
First_Demod_Signal_Strength	First Demodulator Signal Strength, I Channel	dB-Hz	
Second_Demod_Type	Second Demodulator Type Indicator, Q Channel		1="IR" 2="HDRR"
Second_Demod_Lock	Second Demodulator Lock Indicator, Q Channel		0="No Lock" (Red) 1="Lock" (Green)
Second_Demod_Signal_Strength	Second Demodulator Signal Strength, Q Channel	dB-Hz	
Symbol_Sync_Lock_I	Symbol Synchronizer Lock Indicator, I Channel		0="No Lock" 1="Lock"
Symbol_Sync_Lock_Q	Symbol Synchronizer Lock Indicator, Q Channel		0="No Lock" 1="Lock"
BER_Status_I	BER Status, I Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)

**Table D-10. KSAR DG1 UPD Detail Parameters (2 of 3)**

Parameter Name	Description	Units	Enumeration Values/Severities
BER_Status_Q	BER Status, Q Channel		0="Status not valid" (Red) 1="BER >= 10-3" (Red) 2="10-3 > BER >= 10-4" (Red) 3="10-4 > BER >= 10-5" (Red) 4="10-5 > BER >= 10-6" (Green) 5="10-6 > BER >= 10-7" (Green) 6="10-7 > BER >= 10-8" (Green) 7="10-8 > BER >= 10-9" (Green) 8="BER < 10-9" (Green)
Frame_Sync_Mode_I	Frame Sync Mode, I Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Frame_Sync_Mode_Q	Frame Sync Mode, Q Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Clock_Presence_I	Clock Presence, I Channel		0="No" (Red) 1="Yes" (Green)
Clock_Presence_Q	Clock Presence, Q Channel		0="No" (Red) 1="Yes" (Green)
Data_Density_I	Data Transition Density, I Channel	%	
Data_Density_Q	Data Transition Density, Q Channel	%	
Frames_in_Lock_I	Percent Frames in Lock, I Channel	%	
Frames_in_Lock_Q	Percent Frames in Lock, Q Channel	%	
Sync_Dropout_Count_I	Sync Lock Dropout Count, I Channel		
Sync_Dropout_Count_Q	Sync Lock Dropout Count, Q Channel		
Frame_Sync_Word_BER_I	Frame Sync Word BER, I Channel		
Frame_Sync_Word_BER_Q	Frame Sync Word BER, Q Channel		
Data_Format_Conv_I	Data Format Conversion Configuration, I Channel		0="No" 1="Yes"
Data_Format_Conv_Q	Data Format Conversion Configuration, Q Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_I	Symbol Format Conversion Biphase to NRZ, I Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_Q	Symbol Format Conversion Biphase to NRZ, Q Channel		0="No" 1="Yes"
Data_Coding_I	Data Coding, I Channel		0="Uncoded" 1="Code 1 (Rate 1/2)"
Data_Coding_Q	Data Coding, Q Channel		0="Uncoded" 1="Code 1 (Rate 1/2)"
G2_Inversion_I	G2 Inversion, I Channel		0="Not inverted" 1="Inverted"
G2_Inversion_Q	G2 Inversion, Q Channel		0="Not inverted" 1="Inverted"

**Table D-10. KSAR DG1 UPD Detail Parameters (3 of 3)**

<b>Parameter Name</b>	<b>Description</b>	<b>Units</b>	<b>Enumeration Values/Severities</b>
Receiver_Configuration	Receiver Configuration		0="Normal" 1="Cross-support"
Channel_Power_Ratio	I/Q Channel Power Ratio	dB	
Data_Channel_Config	Data Channel Configuration		0="Single source" 1="Dual source"
DG1_Configuration	DG1 Configuration		0="I Channel Only" 1="Q Channel Only" 2="I and Q Channels"
Range_Tracking_Status	Range Tracking Status		0="Inactive" 1="Normal"
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-11. KSAR/KaSAR DG2 UPD Detail Parameters (1 of 3)**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Link_Status	Link Status		0="Active" (Green) 1="Pending" (Red) 2="Acq/Reacq" (Yellow)
Azimuth	Azimuth	deg	
Elevation	Elevation	deg	
Autotrack_Status	Autotrack Status		0="Disabled" 1="No Signal Presence" 2="Signal Presence" 3="Zero Crossing" 4="Autotrack"
Polarization	Polarization		0="LCP" 1="RCP"
Doppler_Tracking	Doppler Tracking Status		0="Inactive" 1="One-way" 2="Two-way"
DG2_Modulation	DG2 Modulation		0="QPSK", 1="BPSK"
Receiver_Coherency	Receiver Coherency Indicator		0="Noncoherent" 1="Coherent"
First_Demod_Type	First Demodulator Type Indicator, I Channel		1="IR" 2="HDRR"
First_Demod_Lock	First Demodulator Lock Indicator, I Channel		0="No Lock" (Red) 1="Lock" (Green)
First_Demod_Signal_Strength	First Demodulator Signal Strength, I Channel	dB-Hz	
Second_Demod_Type	Second Demodulator Type Indicator, Q Channel		1="IR" 2="HDRR"
Second_Demod_Lock	Second Demodulator Lock Indicator, Q Channel		0="No Lock" (Red) 1="Lock" (Green)
Second_Demod_Signal_Strength	Second Demodulator Signal Strength, Q Channel	dB-Hz	
Symbol_Sync_Lock_I	Symbol Synchronizer Lock Indicator, I Channel		0="No Lock" 1="Lock"
Symbol_Sync_Lock_Q	Symbol Synchronizer Lock Indicator, Q Channel		0="No Lock" 1="Lock"
BER_Status_I	BER Status, I Channel		0="Status not valid" (Red) 1="BER >= 10 <sup>-3</sup> " (Red) 2="10 <sup>-3</sup> > BER >= 10 <sup>-4</sup> " (Red) 3="10 <sup>-4</sup> > BER >= 10 <sup>-5</sup> " (Red) 4="10 <sup>-5</sup> > BER >= 10 <sup>-6</sup> " (Green) 5="10 <sup>-6</sup> > BER >= 10 <sup>-7</sup> " (Green) 6="10 <sup>-7</sup> > BER >= 10 <sup>-8</sup> " (Green) 7="10 <sup>-8</sup> > BER >= 10 <sup>-9</sup> " (Green) 8="BER < 10 <sup>-9</sup> " (Green)

**Table D-11. KSAR/KaSAR DG2 UPD Detail Parameters (2 of 3)**

Parameter Name	Description	Units	Enumeration Values/Severities
BER_Status_Q	BER Status, Q Channel		0="Status not valid" (Red) 1="BER >= 10-3" (Red) 2="10-3 > BER >= 10-4" (Red) 3="10-4 > BER >= 10-5" (Red) 4="10-5 > BER >= 10-6" (Green) 5="10-6 > BER >= 10-7" (Green) 6="10-7 > BER >= 10-8" (Green) 7="10-8 > BER >= 10-9" (Green) 8="BER < 10-9" (Green)
Frame_Sync_Mode_I	Frame Sync Mode, I Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Frame_Sync_Mode_Q	Frame Sync Mode, Q Channel		0="Search" 1="Check" 2="Lock" 3="Flywheel"
Clock_Presence_I	Clock Presence, I Channel		0="No" (Red) 1="Yes" (Green)
Clock_Presence_Q	Clock Presence, Q Channel		0="No" (Red) 1="Yes" (Green)
Data_Density_I	Data Transition Density, I Channel	%	
Data_Density_Q	Data Transition Density, Q Channel	%	
Frames_in_Lock_I	Percent Frames in Lock, I Channel	%	
Frames_in_Lock_Q	Percent Frames in Lock, Q Channel	%	
Sync_Dropout_Count_I	Sync Lock Dropout Count, I Channel		
Sync_Dropout_Count_Q	Sync Lock Dropout Count, Q Channel		
Frame_Sync_Word_BER_I	Frame Sync Word BER, I Channel		
Frame_Sync_Word_BER_Q	Frame Sync Word BER, Q Channel		
Data_Format_Conv_I	Data Format Conversion Configuration, I Channel		0="No" 1="Yes"
Data_Format_Conv_Q	Data Format Conversion Configuration, Q Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_I	Symbol Format Conversion Biphase to NRZ, I Channel		0="No" 1="Yes"
Symbol_Fmt_Conv_BI-NRZ_Q	Symbol Format Conversion Biphase to NRZ, Q Channel		0="No" 1="Yes"
Data_Coding_I	Data Coding, I Channel		0="Uncoded" 1="Code 1 (Rate 1/2)"
Data_Coding_Q	Data Coding, Q Channel		0="Uncoded" 1="Code 1 (Rate 1/2)"
G2_Inversion_I	G2 Inversion, I Channel		0="Not inverted" 1="Inverted"
G2_Inversion_Q	G2 Inversion, Q Channel		0="Not inverted" 1="Inverted"

**Table D-11. KSAR/KaSAR DG2 UPD Detail Parameters (3 of 3)**

Parameter Name	Description	Units	Enumeration Values/Severities
Receiver_Configuration	Receiver Configuration		0="Normal" 1="Cross-support"
Channel_Power_Ratio	I/Q Channel Power Ratio	dB	
Data_Channel_Config	Data Channel Configuration		0="Single source" 1="Dual source"
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-12. KaSARWB DG2 UPD Detail Parameters**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Azimuth	Azimuth	deg	
Elevation	Elevation	deg	
Polarization	Polarization		0="LCP" 1="RCP"
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-13. EETF UPD Detail Parameters**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Polarization	Antenna Polarization		0="LCP" 1="RCP"
Sim_Gain_Temp	Simulation Gain/Temperature	dB/K	
Forward_Link_Freq	Forward Link Frequency	MHz	
Sim_Command_Channel_Lock	Simulation Command Channel Lock		0="No Lock" 1="Lock"
Sim_Carrier_Lock	Simulation Carrier Lock		0="No Lock" 1="Lock"
Sim_Bit_Sync_Lock	Simulation Bit Sync Lock		0="No Lock" 1="Lock"
BER_Status			0="Status not valid" (Red) 1="BER >= 10-3" (Red) 2="10-3 > BER >= 10-4" (Red) 3="10-4 > BER >= 10-5" (Red) 4="10-5 > BER >= 10-6" (Green) 5="10-6 > BER >= 10-7" (Green) 6="10-7 > BER >= 10-8" (Green) 7="10-8 > BER >= 10-9" (Green) 8="BER < 10-9" (Green)
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-14. EETR UPD Detail Parameters**

Parameter Name	Description	Units	Enumeration Values/Severities
SUPIDEN	SUPIDEN		
Polarization	Antenna Polarization		0="LCP" 1="RCP"
Simulation_EIRP	Simulation EIRP	dBW	
Return_Link_Freq	Return Link Frequency	MHz	
TDRS_Yaw	TDRS Yaw	deg	
TDRS_Roll	TDRS Roll	deg	
TDRS_Pitch	TDRS Pitch	deg	

**Table D-15. DASMAR UPD Detail Parameters**

Parameter Name	Description	Units	Enumeration Values/Severities
TDRS	TDRS Name		
SIC	Support Identification Code		
SERVICEPERIODSTARTTIME	Service Start Time		Start time in yyyy/ddd hh:mm:ss format
	User Performance Data Time		Time UPD was generated in yyyy/ddd hh:mm:ss format
	Link Number		Request or Event ID to which the UPD is applicable
	Status		Active Inactive
Acq_Mode	Acquisition Mode	Hz	Mode A(700 Hz), Mode B(3000 Hz)
Carrier_Freq_Ref	Carrier Frequency Reference	Hz	
Modulation_Data_Ch	Modulation/Data Channel		BPSK SQPN single channel SQPN dual channel
Protocol_Data	Protocol (Data Format)		Async, AXAF-1, IPDU, LEO-T, SFDU
IBU Mode	Independent Beamforming Unit(IBU) Mode		Adaptive mode Pointing mode Fixed weight mode Fixed weight mode with calibration Fixed weight mode with adaptation
Storage Duration	Storage Duration	days	

IP_Add_I	IP Address, I Channel		
IP_Add_Q	IP Address, Q Channel		
Port_Num_I	Port Number, I Channel		
Port_Num_Q	Port Number, Q Channel		
PN_Code_I	Pseudo Random Noise Code, I Channel		
PN_Code_Q	Pseudo Random Noise Code, Q Channel		
Data_Rate_I	Data Rate, I Channel	bps	
Data_Rate_Q	Data Rate, Q Channel	bps	
G2_Symb_Inv_I	G2 Symbol Inversion, I Channel		Upright Inverted
G2_Symb_Inv_Q	G2 Symbol Inversion, Q Channel		Upright Inverted
Symb_Fmt_I	Symbol Format, I Channel		NRZ Biphase
Symb_Fmt_Q	Symbol Format, Q Channel		NRZ Biphase
Data_Fmt_I	Data Format, I Channel		L="NRZ-L" M="NRZ-M" S="NRZ-S"
Data_Fmt_Q	Data Format, Q Channel		L="NRZ-L" M="NRZ-M" S="NRZ-S"
Rec_Carrier_Freq	Recovered Carrier Frequency with RF Doppler removed	Hz	
Eb_No_Est_I	Eb/No Estimate, I Channel	dB	
Eb_No_Est_Q	Ev/No Estimate, Q Channel	dB	
Sig_Ack_I	RF Signal Detected, I Channel		Yes No
Sig_Ack_Q	RF Signal Detected, Q Channel		Yes No
Lock_Status_I	Receiver Lock, I Channel		Yes No
Lock_Status_Q	Receiver Lock, Q Channel		Yes No
Output_Connectivity_I	Output Socket Connectivity, I Channel		Active Inactive
Output_Connectivity_Q	Output Socket Connectivity, Q Channel		Active Inactive
Frame_Sync_Status_I	Frame Synchronization, I Channel		Sync No Sync
Frame_Sync_Status_Q	Frame Synchronization, Q Channel		Sync No Sync
VCP_CRC_Check_I	VCP – CRC, I Channel		Pass Fail
VCP_CRC_Check_Q	VCP-CRC, Q Channel		Pass Fail
VCP_RS_Uncorrectable_I	VCP – RS Uncorrectable Errors, I Channel		

VCP_RS_Uncorrectable_I	VCP – RS Uncorrectable Errors, Q Channel		
VCP_RS_Correctable_Q	VCP – RS Correctable Errors, I Channel		
VCP_RS_Correctable_Q	VCP – RS Correctable Errors, Q Channel		
Output_Connectivity_I_Embed_Ch l	Output Socket Connectivity, I Channel		Active Inactive
Output_Connectivity_Q_Embed_C hl	Output Socket Connectivity, Q Channel		Active Inactive
Frame_Sync_Status_I_Embed_Ch l	Frame Synchronization, Embedded I Channel		Sync No Sync
Frame_Sync_Status_Q_Embed_Ch l	Frame Synchronization, Embedded Q Channel		Sync No Sync
VCP_CRC_Check_I_Embed_Ch l	VCP – CRC, Embedded I Channel		Pass Fail
VCP_CRC_Check_Q_Embed_Ch l	VCP – CRC, Embedded Q Channel		Pass Fail
VCP_RS_Uncorrectable_I_Embed_ Chl	VCP – RS Uncorrectable Errors, Embedded I Channel		
VCP_RS_Uncorrectable_Q_Embed_ _Chl	VCP – RS Uncorrectable Errors, Embedded Q Channel		
VCP_RS_Correctable_I_Embed_C hl	VCP – RS Correctable Errors, Embedded I Channel		
VCP_RS_Correctable_Q_Embed_C hl	VCP – RS Correctable Errors, Embedded Q Channel		
VCP_Segregation_IP_Address_I_E mbed_Ch l	IP Address for Engineering Data for Embedded I Channel		
VCP_Segregation_IP_Address_Q_ Embed_Ch l	IP Address for Engineering Data for Embedded Q Channel		
VCP_Segregation_Port_Num_I_E mbed_Ch l	TCP Port Number for Engineering Data for Embedded I Channel		
VCP_Segregation_Port_Num_Q_E mbed_Ch l	TCP Port Number for Engineering Data for Embedded Q Channel		

# Appendix E. UPD Log File Format

---

## E.1 General

The general format of the UPD log file stored on the Client workstation as described in Section 9.4 is as follows:

```
UPD
  TimeTag="YYYY/DDD_HHMMSS"
  SIC/Supiden="<supiden>"
  ServiceType="<upd_type>"
  TDRS="<TDRS>"
  AntennaLinkNumber="<antenna_link_id>"
  Mode="<mode>"
  <param1name>=<"param1value">
  <param2name>=<"param2value">
  <param3name>=<"param3value">
  .
  .
  <paramnname>=<"paramnvalue">
ENDUPD
```

In general, parameter or keyword assignments are of the following format:

```
<keyword>="<value>"
```

Where the <value> is always provided within quotes. In cases where a parameter may have no value, such as with the AntennaLink for MAF in the example, the value is still provided as a null value (e.g., AntennaLink ="").

The keywords shown above are defined as follows:

- UPD – start of a single UPD message.
- TimeTag – time tag from UPD message.
- SIC/Supiden – Support Identifier. SIC is stored instead of SUPIDEN for DAS services.
- ServiceType – UPD service type. A list of valid types is shown in Table 9-2. These types are derived from the UPD service types described in detail in Section 8 of the *NCCDS/MOC ICD*. Each type also contains data from the associated header packets. Separate UPD service types are provided for the various Data Group (DG) configurations. Optional Data Quality Monitoring (DQM) data is included with the appropriate return service packet.
- TDRS – TDRS name.
- AntennaLinkNumber – antenna number or link ID for NCCDS services, event ID for DASMAR.

- Mode – OPS or EIF
- ENDUPD – end of a single UPD message.

## E.2 UPD Parameter Values

The remainder of a stored UPD consists of a list of parameter names and their values. These names are defined for each service in Appendix D, Tables D-1 through D-15. For enumerated parameters, the text value is stored.

## E.3 Sample File

Following is a sample of a UPD log file. In this case only two UPD messages are shown. For brevity not all UPD parameter values are shown.

```

UPD
  TimeTag="2002/310_213205"
  SIC/Supiden="B1294CS"
  ServiceType="MAF"
  TDRS="TDE"
  AntennaLinkNumber=" "
  Mode="EIF"
  Elevation="+45.0"
  TDRS_Roll="000.0"
  TDRS_Pitch="000.0"
  TDRS_Yaw="000.0"
  SUPIDEN="B1294CS"
  Clock_Presence="Yes"
  Azimuth="+90.0"
  Signal_EIRP="+30.0"
  Link_Status="Active"
  Radiated_Freq="02106.40854"
  Data_Density="30"
ENDUPD

UPD
  TimeTag="2002/310_213205"
  SIC/Supiden="B1294CS"
  ServiceType="MAR"
  TDRS="TDE"
  AntennaLinkNumber="01"
  Mode="EIF"
  Beamforming_Equip_ID="03"
  Mode="Mode 2 (Non-coherent)"
  Symbol_Fmt_Conv_BI-NRZ_Q="No"
  .
  .
  Data_Format_Conv_Q="No"
  TDRS_Yaw="000.0"
  Sync_Dropout_Count_I="99999999"

```

## Appendix F. Abbreviations and Acronyms

---

<b>Acronym</b>	<b>Definition</b>
ACK	Acknowledgement
AFN	Acquisition Failure Notification
ANCC	Auxiliary Network Control Center
ASAR	Alternate Schedule Add Request
CCB	Configuration Control Board
CCR	Configuration Change Request
CCS	Communications and Control Segment
COTS	Commercial Off-The-Shelf
CNE	Center Network Environment
CSV	Comma Separated Values
DAS	Demand Access System
DASCON	Demand Access System Controller
DASMAR	Demand Access System Multiple Access Return
DASPBK	Demand Access System Playback
DBA	Database Administrator
DBMS	Database Management System
DCN	Document Change Notice
DG	Data Group
DQM	Data Quality Monitoring
DSMC	Data Services Management Center
EETF	End-to-End Test Forward
EETR	End-to-End Test Return
EIF	Engineering Interface
FDF	Flight Dynamics Facility
FOUO	For Official Use Only
GCMR	Ground Control Message Request

<b>Acronym</b>	<b>Definition</b>
GN	Ground Network
GOTS	Government Off-The-Shelf
GSFC	Goddard Space Flight Center, Greenbelt, MD
GUI	Graphical User Interface
ICD	Interface Control Document
IIRV	Improved Interrange Vector
IONet	Internet Protocol Operational Network
IP	Internet Protocol
JRE	Java Runtime Environment
JVM	Java Virtual Machine
KaSAF	Ka-Band Single Access Forward
KaSAR	Ka-Band Single Access Return
KaSARWB	Ka-Band Single Access Return Wideband
KSAF	K-Band Single Access Forward
KSAR	K-Band Single Access Return
LAF	Look and Feel
LOP	Local Operating Procedure
MA	Multiple Access
MAF	Multiple Access Forward
MAR	Multiple Access Return
MOC	Mission Operations Center
NCC	Network Control Center
NCCDS	NCC Data System
NISN	NASA Integrated Services Network
NPG	NCCDS Protocol Gateway
OPS	Operations
PBKDR	Playback Deletion Request
PBKMR	Playback Modification Request
PBKR	Playback Request

<b>Acronym</b>	<b>Definition</b>
RADR	Resource Allocation Deletion Request
RAM	Random Access Memory
RAMR	Resource Allocation Modification Request
RAR	Resource Allocation Request
RCTD	Return Channel Time Delay
RR	Replace Request
SA	Single Access
SAR	Schedule Add Request
SDIF	SWSI-DAS Interface
SDR	Schedule Delete Request
SIC	Support Identification Code
SMAF	S-band Multiple Access Forward
SMAR	S-band Multiple Access Return
SN	Space Network
SNIF	SWSI-NCCDS Interface
SNUG	Space Network Users' Guide
SPS	Service Planning Segment
SRM	Schedule Result Message
SSAF	S-band Single Access Forward
SSAR	S-band Single Access Return
SSC	Service Specification Code
SSL	Secure Socket Layer
STDN	Spaceflight Tracking and Data Network
STGT	Second TDRSS Ground Terminal
SUPIDEN	Support Identifier
SWSI	SN Web Services Interface
TBS	To Be Supplied
TCP	Transmission Control Protocol
TDRS	Tracking and Data Relay Satellite

<b>Acronym</b>	<b>Definition</b>
TDRSS	Tracking and Data Relay Satellite System
TGBFS	Third Generation Beamforming Subsystem
TSW	TDRS Scheduling Window
TTM	Time Transfer Message
TUT	TDRSS Unscheduled Time
UPD	User Performance Data
USM	User Schedule Message
UT	Universal Time
UTC	Universal Time Code
WGS-84	World Geodetic System 1984
WLR	Wait List Request
WSC	White Sands Complex
WSGT	White Sands Ground Terminal
WWW	World Wide Web

452-UG-SWSI

**Space Network (SN)  
Web Services Interface (SWSI)  
Client Software User's Guide  
Release 04.1**

DCN 1